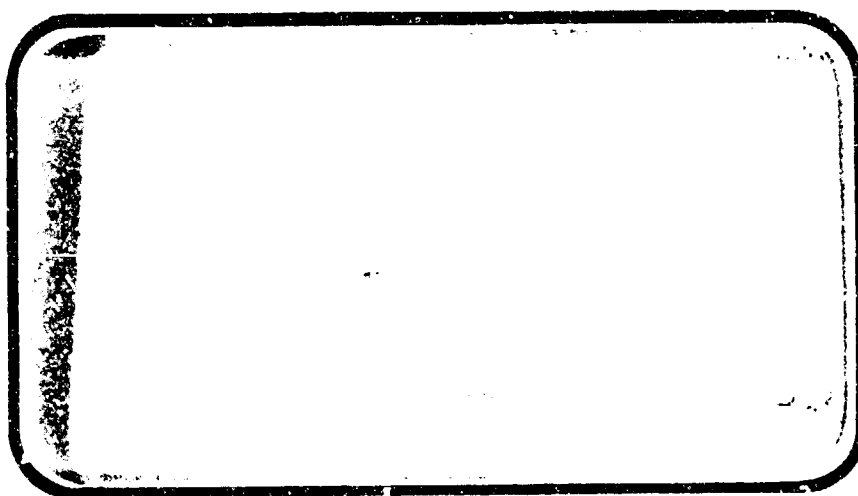




NATIONAL AERONAUTICS AND SPACE ADMINISTRATION



NASA-CR-128786) RESULTS OF INVESTIGATIONS
ON A 0.015-SCALE MODEL 2A CONFIGURATION
OF THE ROCKWELL INTERNATIONAL SPACE
SHUTTLE ORBITER IN THE (Chrysler Corp.)
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SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT



JOHNSON SPACE CENTER

HOUSTON, TEXAS

DATA Management services

SPACE DIVISION



CHRYSLER
CORPORATION

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RESULTS OF INVESTIGATIONS ON A 0.015-SCALE
MODEL 2A CONFIGURATION OF THE ROCKWELL INTER-
NATIONAL SPACE SHUTTLE ORBITER IN THE NASA/AMES
RESEARCH CENTER 3.5-FOOT HYPERSONIC WIND TUNNEL

By

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Rockwell International
Jack A. Mellenthin, NASA Ames

Prepared under Contract Number NAS9-13247

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New Orleans, La. 70189

for

Engineering Analysis Division

Johnson Space Center
National Aeronautics and Space Administration
Houston, Tex.

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NASA Series Number: OA11A
Test Dates: 4/9/73 - 4/18/73

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RESULTS OF INVESTIGATIONS ON A 0.015-SCALE
MODEL 2A CONFIGURATION OF THE ROCKWELL INTER-
NATIONAL SPACE SHUTTLE ORBITER IN THE NASA/AMES
RESEARCH CENTER 3.5-FOOT HYPERSONIC WIND TUNNEL

By

Morris D. Milam**, Mark E. Nichols** and Jack A. Mellenthin*

ABSTRACT

Experimental aerodynamic investigations were conducted in the NASA/Ames 3.5-Foot Hypersonic Wind Tunnel during the interim April 9-18, 1973 on a 0.015-scale model of the Rockwell International Space Shuttle Orbiter, configuration 2A. Six component aerodynamic force and moment data were recorded over an angle of attack range from -3° to 42° at 0° angle of sideslip and from -10° to 10° sideslip at 0° and 45° constant angle of attack. Test Mach numbers were 5.27 and 7.32 at unit Reynolds number of 2.5×10^6 per foot. Various elevon, rudder, speedbrake, and body flap deflections were tested to determine longitudinal and lateral-directional stability characteristics and to establish trim capability.

* Ames Research Center
** Rockwell International

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	(I) CYBETA, CYNBET, CHLBET vs. ALPHA		

NOMENCLATURE General

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
a		speed of sound; m/sec, ft/sec
C _p	CP	pressure coefficient; $(P_1 - P_\infty)/q$
M	MACH	Mach number; V/a
P		pressure; N/m ² , psf
q	Q(NSM) Q(PSF)	dynamic pressure; $1/2\rho V^2$, N/m ² , psf
RN/L	RN/L	unit Reynolds number; per m, per ft
V		velocity; m/sec, ft/sec
α	ALPHA	angle of attack, degrees
β	BETA	angle of sideslip, degrees
ψ	PSI	angle of yaw, degrees
ϕ	PHI	angle of roll, degrees
ρ		mass density; kg/m ³ , slugs/ft ³
<u>Reference & C.G. Definitions</u>		
A _b		base area; m ² , ft ²
b	BREF	wing span or reference span; m, ft
c.g.		center of gravity
$\frac{l}{c}$ _{REF}	LREF	reference length or wing mean aerodynamic chord; m, ft
S	SREF	wing area or reference area; m ² , ft ²
	MRP	moment reference point
	XMRP	moment reference point on X axis
	YMRP	moment reference point on Y axis
	ZMRP	moment reference point on Z axis

SUBSCRIPTS

b	base
l	local
s	static conditions
t	total conditions
∞	free stream

NOMENCLATURE (Continued)

Body-Axis System

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
C_N	CN	normal-force coefficient; $\frac{\text{normal force}}{qS}$
C_A	CA	axial-force coefficient; $\frac{\text{axial force}}{qS}$
C_Y	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
C_{A_b}	CAB	base-force coefficient; $\frac{\text{base force}}{qS}$ $-A_b(P_b - P_\infty)/qS$
C_{A_f}	CAF	forebody axial force coefficient, $C_A - C_{A_b}$
C_m	CLM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS_{REF}}$
C_n	CLN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qS_b}$
C_l	CBL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qS_b}$

Stability-Axis System

C_L	CL	lift coefficient; $\frac{\text{lift}}{qS}$
C_D	CD	drag coefficient; $\frac{\text{drag}}{qS}$
C_{D_b}	CDB	base-drag coefficient; $\frac{\text{base drag}}{qS}$
C_{D_f}	CDF	forebody drag coefficient; $C_D - C_{D_b}$
C_Y	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
C_m	CLM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS_{REF}}$
C_n	CLN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qS_b}$
C_l	CSL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qS_b}$
L/D	L/D	lift-to-drag ratio; C_L/C_D

In addition to the standard notation, the following are special to this test.

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
x_{cp}/L	XCP/L	longitudinal center of pressure location
ΔC_A	DCA	incremental axial-force coefficient
ΔC_D	DCD	incremental drag coefficient
ΔC_L	DCL	incremental lift coefficient
ΔC_m	DCLm	incremental pitching-moment coefficient
ΔC_N	DCN	incremental normal-force coefficient
δ_a	AILRON	aileron deflection, $(\delta_{e_L} - \delta_{e_R})/2$, degrees
δ_{BF}	BDFLAP	body flap deflection, degrees
δ_e	ELEVON	elevon deflection, $(\delta_{e_L} + \delta_{e_R})/2$, degrees
δ_{e_L}	ELVN-L	left elevon deflection, degrees
δ_{e_R}	ELVN-R	right elevon deflection, degrees
δ_R	RUDDER	rudder deflection, degrees
δ_{SB}	SPDBRK	speedbrake deflection, degrees
$C_{Y\beta}$	CYBETA	derivative of side force coefficient with respect to beta (beta=+5°); per degree
$C_{n\beta}$	CYNBET	derivative of yawing moment coefficient with respect to beta (beta=+5°); per degree, body axis system
$C_{l\beta}$	CBLBET	derivative of rolling moment coefficient with respect to beta (beta=+5°); per degree, stability axis system

CONFIGURATIONS INVESTIGATED

The test vehicle is a 0.015-scale model of the Rockwell International Space Shuttle Orbiter, configuration 2A light-weight orbiter. It was sting mounted in the wind tunnel utilizing the Task MKII-D 1.5 inch internal strain gage balance to measure six component aerodynamic force and moment data.

Since the primary purpose of the test was to obtain data relative to aerodynamic control deflections, no body build-up testing was scheduled. Emphasis was on elevator, speedbrake, rudder and body flap deflections.

The orbiter model consisted of the following components and is depicted in figure 2. Pertinent dimensional information for each component is given in table 3. Table 2 summarizes the test schedule.

Configuration Nomenclature

<u>Component</u>	<u>Description</u>
B ₁₀	Basic 2A fuselage of the Rockwell International SSV orbiter configuration (VL70-000092A, VL70-000093, VL70-000094)
C ₅	Basic 2A canopy
D ₇	Basic 2A manipulator arm housing
F ₄	Basic 2A body flap
W ₈₇	Basic 2A wing
E ₁₈	Elevon on basic 2A wing
M ₃	Basic OMS-RCS pod for the Rockwell International SSV 2A configuration
V ₅	Basic 2A vertical tail
R ₅	Basic rudder for vertical tail
N ₈	Basic 2A OMS engine nozzle

Configurations Tested

See table 2 for the configurations tested.

TEST FACILITY

The test program was conducted in air in the Ames 3.5-Foot Hypersonic Wind Tunnel. This facility is a blowdown-type tunnel that utilizes a pebble-bed heater to heat the air, and axisymmetric contoured nozzles to provide flow Mach numbers of 5.3, 7.4, and 10.4. The nozzle walls are insulated from the hot air stream by injecting helium into the nozzle boundary layer through annular slots upstream of the throat. The tunnel is equipped with a model quick-insert mechanism for quickly moving models into and out of the air stream.

A high-speed, analog-to-digital data acquisition system is used to record test data on magnetic tape. The present system is equipped to measure and record the outputs from 80 thermocouples and/or other types of transducers in addition to 20 channels of tunnel parameters.

DATA REDUCTION

The aerodynamic forces and moments recorded by the internal strain gage balance were reduced to coefficient form in the body axis system utilizing the following reference dimensions:

		model scale	full scale
S_{ref}	wing planform area	0.605 ft ²	2690 ft ²
\bar{c}	wing mean aerodynamic chord	7.122 in	474.8 in
b	wing span	14.050 in	936.68 in

Moments are referenced about a point 66% of the body length, which is model station 16.147 (fuselage station 1076.48), or 13.147 inches aft of the nose on fuselage reference line 6.0 (400). Pitching moment data is also presented at fuselage station 1103.24.

Although model base and cavity pressures were measured during the test, they are unavailable here and no adjustments have been made to the data for these pressures.

TABLE 1.

[illegible]

TABLE 2.

[illegible]

TABLE 2. - Continued.

[illegible]

TABLE 2. - (Concluded)

[illegible]

TABLE 3. - MODEL DIMENSIONAL DATA

MODEL COMPONENT : BODY - B10

GENERAL DESCRIPTION : DOUBLE DELTA WING FUSELAGE PER LINES VL70-000093, WITH

57.0 IN. RADIUS NOSE

2A CONFIGURATION LT WT ORBITER

SCALE MODEL = .015 (18-0)

DRAWING NUMBER : VL72-000061 VL70-000093

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length - in.	<u>1328.3</u>	<u>19.924</u>
Max. Width - in. (@ $X_0 = 1528.3$)	<u>265.0</u>	<u>3.975</u>
Max. Depth - in. (@ $X_0 = 1480.52$)	<u>248.0</u>	<u>3.720</u>
Fineness Ratio	<u>5.012</u>	<u>5.012</u>
Area - ft ²	<u></u>	<u></u>
Max. Cross-Sectional	<u>456.40</u>	<u>0.1027</u>
Planform	<u></u>	<u></u>
Wetted	<u></u>	<u></u>
Base	<u></u>	<u></u>

TABLE 3. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT : CANOPY - C_E

GENERAL DESCRIPTION : 2A CONFIGURATION PER LINES VL70-000092.

SCALE MODEL = 0.015

DRAWING NUMBER : VL70-000092

DIMENSIONS :	FULL SCALE	MODEL SCALE
Sta. Fwd. Bulkhead, in.	<u>391.00</u>	<u>5.865</u>
Sta. T. E., in.	<u>560.0</u>	<u>8.400</u>
Canopy Intersects Body ML, in.	<u>391.00</u>	<u>5.865</u>
Fineness Ratio	<u> </u>	<u> </u>
Area	<u> </u>	<u> </u>
Max. Cross-Sectional	<u> </u>	<u> </u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>

No info on view angles

TABLE 3. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT : MANIPULATOR HOUSING - D₇
 GENERAL DESCRIPTION : 2A CONFIGURATION, LIGHT WT ORBITER PER LINES

 SCALE MODEL = 0.015

 DRAWING NUMBER : VL70-000093

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length - IN.	<u>881.00</u>	<u>13.215</u>
Max. Width - IN.	<u>51.00</u>	<u>0.765</u>
Max. Depth - IN.	<u>23.00</u>	<u>0.345</u>
Fineness Ratio	<u> </u>	<u> </u>
Area	<u> </u>	<u> </u>
Max. Cross-Sectional	<u> </u>	<u> </u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>

⊕ Fuselage, BP = 0.0 INFS
 WP = 500.0 INFS
 X_O 426.0 to 1307.0 INFS

TABLE 3. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: WING - W₈₇ NEW LIGHTWEIGHT ORBITERGENERAL DESCRIPTION: Orbiter Configuration per Lines VL70-000093NOTE: (Dihedral angle is defined at the lower surface of the wing at the 75.33%
element line projected into a plane perpendicular to the FRL.)SCALE MODEL 0.015

TEST NO. _____

DWG. NO. VL70-000093DIMENSIONS:FULL-SCALEMODEL SCALETOTAL DATA

Area(Theo.) ~ Ft ²	2690.00	0.605
Planform		
Wetted	936.68	14.05
Span(Theo) In.	2.265	2.265
Aspect Ratio	1.177	1.177
Rate of Taper	0.200	0.200
Taper Ratio	3.500	3.500
Dihedral Angle, degrees	3.000	3.000
Incidence Angle, degrees	+3.000	+3.000
Aerodynamic Twist, degrees		
Toe-In Angle		
Cant Angle		
Sweep Back Angles, degrees		
Leading Edge	45.000	45.000
Trailing Edge	-10.24	-10.24
0.25 Element Line	35.209	35.209
Chords: ~ in.		
Root (Theo) B.P.O.O.	689.24	10.339
Tip, (Theo) B.P.	137.85	2.068
MAC	474.81	7.122
Fus. Sta. of .25 MAC	1136.89	17.053
W.P. of .25 MAC	299.20	4.488
B.L. of .25 MAC	182.13	2.732
Airfoil Section		
Root		
Tip		

EXPOSED DATA

Area(Theo) ~ Ft ²	1752.29	0.394
Span, (Theo) ~ In. BP108 to 468.341	720.68	10.810
Aspect Ratio	2.058	2.058
Taper Ratio	0.2451	0.2451
Chords		
Root BP108	562.40	8.136
Tip 1.00b	137.85	2.068
MAC ²	303.03	5.895
Fus. Sta. of .25 MAC	1185.31	17.779
W.P. of .25 MAC	300.20	4.503
B.L. of .25 MAC	143.76	2.156

TABLE 3. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: WING - W87 NEW LIGHTWEIGHT ORBITER (Continued.)

Airfoil Section (Rockwell Mod NASA)		
XXXX-64		
Root $\frac{b}{2} = 0.425$	<u>0.10</u>	<u>0.10</u>
Tip $\frac{b}{2} = 1.00$	<u>0.12</u>	<u>0.12</u>
Data for (1) of (2) Sides		
Leading Edge Cuff		
Planform Area ~ Ft ²	<u>120.33</u>	<u>0.0271</u>
Leading Edge Intersects Fus M. L. @ Sta	<u>560.0</u>	<u>8.400</u>
Leading Edge Intersects Wing @ Sta	<u>1035.0</u>	<u>15.525</u>

TABLE 3. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ELEVON E-18

GENERAL DESCRIPTION: 2A CONFIGURATION PER W-87, LINES VL70-000093

DATA FOR (1) OF (2) SIDES

MODEL SCALE = 0.015

DRAWING NUMBER: VL70-000093

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area - ft ²	<u>205.517</u>	<u>0.046</u>
Span (equivalent) - in.	<u>353.34</u>	<u>5.300</u>
Inb'd equivalent chord (B.P. 115.0 in.),	<u>114.78</u>	<u>1.722</u>
Outb'd equivalent chord (B.P. 468.3 in.),	<u>55.00</u>	<u>0.825</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>.208</u>	<u>.209</u>
At Outb'd equiv. chord	<u>.400</u>	<u>.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>0.00</u>	<u>0.00</u>
Tailing Edge	<u>-10.02</u>	<u>-10.02</u>
Hingeline	<u>0.00</u>	<u>0.00</u>
Area Moment (Normal to hinge line)- ft ³	<u>1548.07</u>	<u>0.005</u>
Product of Area Moment		

NOTE: The elevon panel consists of an inboard and outboard segment. The split line dividing the segments is at B.P. 281 inches full scale (B.P. 4.215 inches Model Scale).

TABLE 3. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: VERTICAL - V5 (Lightweight Orbiter Configuration)GENERAL DESCRIPTION: Centerline vertical tail, double wedge airfoil with rounded leading edge.

SCALE MODEL = 0.015

DRAWING NUMBER: VL70-000095

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
<u>TOTAL DATA</u>		
Area (Theo) ~ Ft ²	413.25	.0929
Planform		
Span (Theo) ~ In.	315.72	4.735
Aspect ratio	1.675	1.675
Rate of Taper	0.507	0.507
Taper Ratio	0.404	0.404
Dihedral Angle, degrees		
Incidence Angle, degrees		
Aerodynamic Twist, degrees		
Toe-In Angle		
Cant Angle		
Sweep Back Angles, degrees		
Leading Edge	45.000	45.000
Trailing Edge	26.249	26.249
0.25 Element Line	41.130	41.130
Chords: ~ in.		
Root (Theo) WP	268.50	4.0275
Tip, (Theo) WP	108.47	1.627
MAC	199.81	2.997
Fus. Sta. of .25 MAC	1463.50	21.952
W.P. of .25 MAC	635.522	9.533
B.L. of .25 MAC	0.00	0.00
Airfoil Section		
Leading Wedge Angle Deg	10.000	10.000
Trailing Wedge Angle Deg	14.920	14.920
Leading Edge Radius	2.00	2.000
Void Area ~ ft ²	13.17	0.0030
Blanketed Area	12.67	0.0028

TABLE 3. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: RUDDER F₅

GENERAL DESCRIPTION: 2A CONFIGURATION PER LINES VL70 000095

SCALE MODEL = 0.015

DRAWING NUMBER: VL70-000095

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area - ft ²	<u>106.38</u>	<u>0.024</u>
Span (equivalent) - in.	<u>201.0</u>	<u>3.015</u>
Inb'd equivalent chord - in.	<u>91.585</u>	<u>1.374</u>
Outb'd equivalent chord - in.	<u>50.833</u>	<u>0.762</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
At Outb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>34.83</u>	<u>34.83</u>
Tailing Edge	<u>26.25</u>	<u>26.25</u>
Hingeline	<u>34.83</u>	<u>34.83</u>
Area Moment (Normal to hinge line) - ft ³	<u>526.125</u>	<u>0.0018</u>
Product of Area and Mean Chord		

TABLE 3. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT : OMS PODS - M₃

GENERAL DESCRIPTION : 2A LIGHT WT CONFIGURATION PER MC120074,
PER LINES VL70-000094.

SCALE MODEL = 0.015

DRAWING NUMBER : VL70-000094

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length ~ in.	<u>346.0</u>	<u>5.190</u>
Max. Width ~ in. @ X ₀ = 1450.0	<u>108.0</u>	<u>1.620</u>
Max. Depth ~ in. @ X ₀ = 1500.0	<u>113.8</u>	<u>1.707</u>
Fineness Ratio	<u> </u>	<u> </u>
Area	<u> </u>	<u> </u>
Max. Cross-Sectional	<u> — </u>	<u> — </u>
Planform	<u> — </u>	<u> — </u>
Wetted	<u> — </u>	<u> — </u>
Base	<u> — </u>	<u> — </u>

E OF OMS POD

$$Z_0 = 463.9 \text{ INCHES FS; WP } 400.0 + 63.9 = 463.9 \text{ INFS}$$

$$6.000 + .959 = 6.959 \text{ INMS}$$

$$Y_0 = 80.0 \text{ INFS, } 1.20 \text{ INMS}$$

$$\text{FROM FUSELAGE STATION } 1214.0 \text{ to } 1560 \text{ INFS} = 346.0 \text{ INFS}$$

$$18.210 \text{ to } 23.40 \text{ INMS} = 5.190 \text{ INMS}$$

TABLE 3. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT:	<u>N₈ - OMS Nozzle</u>	
GENERAL DESCRIPTION:	<u>Basic OMS Nozzle of the 2A Orbiter Configuration</u>	
	<u>(VL70-000089"B")</u>	
SCALE MODEL =	<u>0.015</u>	
DRAWING NO.	<u>VL70-008306</u>	
DIMENSIONS	FULL-SCALE	MODEL SCALE
MACH NO <u>N/A</u>		
DIAMETER DEX ~ IN	<u>50.00</u>	<u>0.750</u>
DIAMETER DT ~ IN	<u>N/A</u>	
DIAMETER DIN ~ IN	<u>28.00</u>	<u>0.420</u>
ON ~ DEGREES	<u>N/A</u>	
AREA ~ ft ²		
MAX CROSS-SECTIONAL	<u>13.635</u>	<u>.003067</u>
OMS GIMBAL ORIGIN <u>±8.0 deg.</u>	<u>X_o</u>	<u>Y_o</u>
RIGHT NOZZLE ~ IN	<u>1518</u>	<u>88.0</u>
LEFT NOZZLE ~ IN	<u>1518</u>	<u>-88.0</u>
NULL POSITION	<u>PITCH</u>	<u>YAW</u>
RIGHT NOZZLE ~ DEG.	<u>15°49'</u>	<u>12°17'</u>
LEFT NOZZLE ~ DEG.	<u>15°49'</u>	<u>-12°17'</u>
NOTE: Intersection of nozzle exit plane and nozzle centerline ~ in.	<u>X_o</u>	<u>23.561</u>
	<u>Y_o</u>	<u>±1.489</u>
	<u>Z_o</u>	<u>7.609</u>

TABLE 3. - MODEL DIMENSIONAL DATA - Concluded.

MODEL COMPONENT : FL BODY FLAP

GENERAL DESCRIPTION : 2A CONFIGURATION PER LINES VL70-000094

SCALE MODEL = 0.015

DRAWING NUMBER : VL70-000094 "A"

DIMENSIONS	FULL SCALE	MODEL SCALE
Length - in.	<u>84.70</u>	<u>1.2705</u>
Max. Width - in.	<u>265.00</u>	<u>3.975</u>
Max. Depth - in.	<u>21.00</u>	<u>0.315</u>
Fineness Ratio	<u> </u>	<u> </u>
Area, ft ²	<u> </u>	<u> </u>
Max. Cross-Sectional	<u> </u>	<u> </u>
Planform	<u>142.64</u>	<u>0.0321</u>
Wetted	<u> </u>	<u> </u>
Base	<u>38.646</u>	<u>0.0087</u>

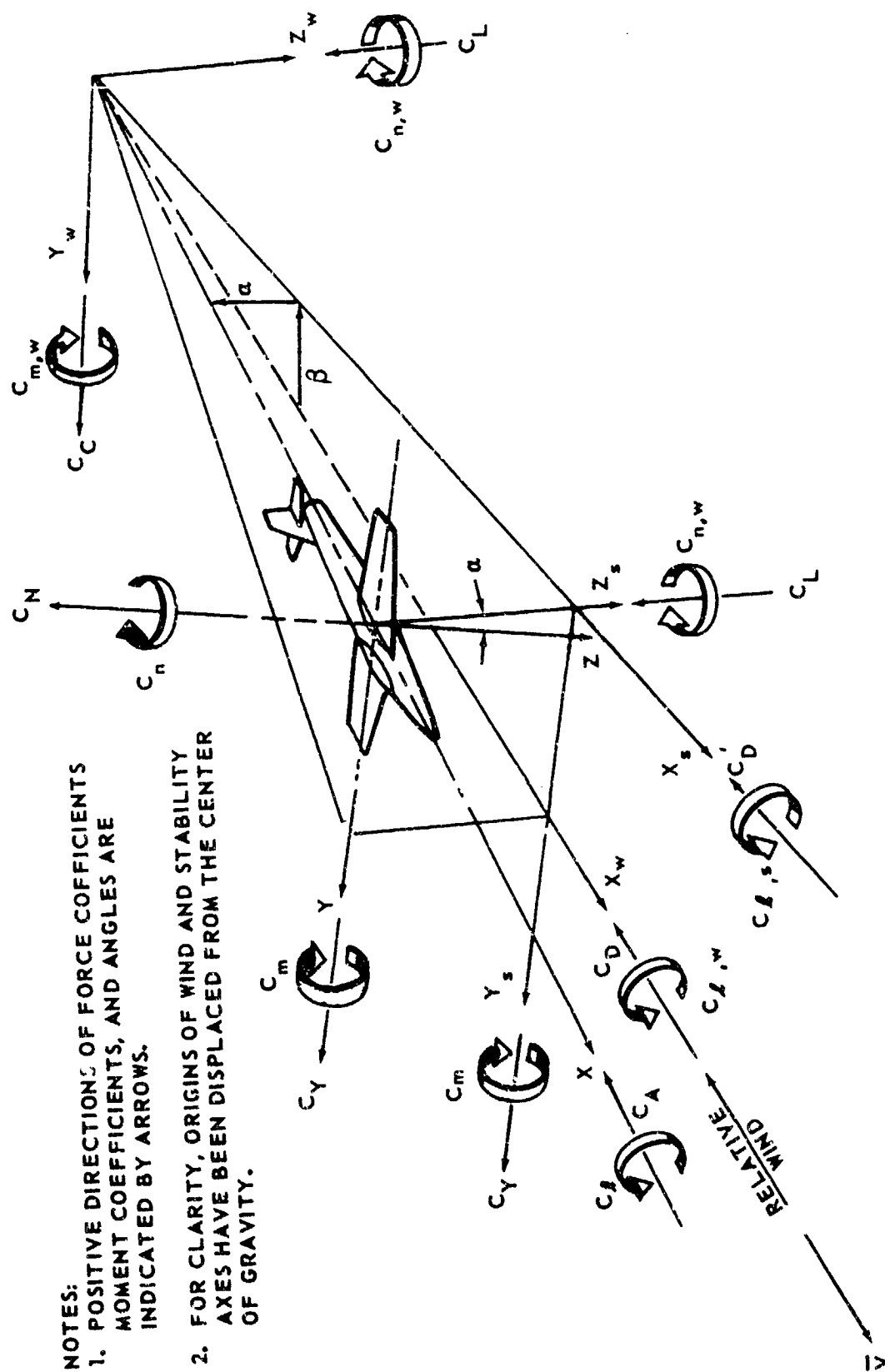
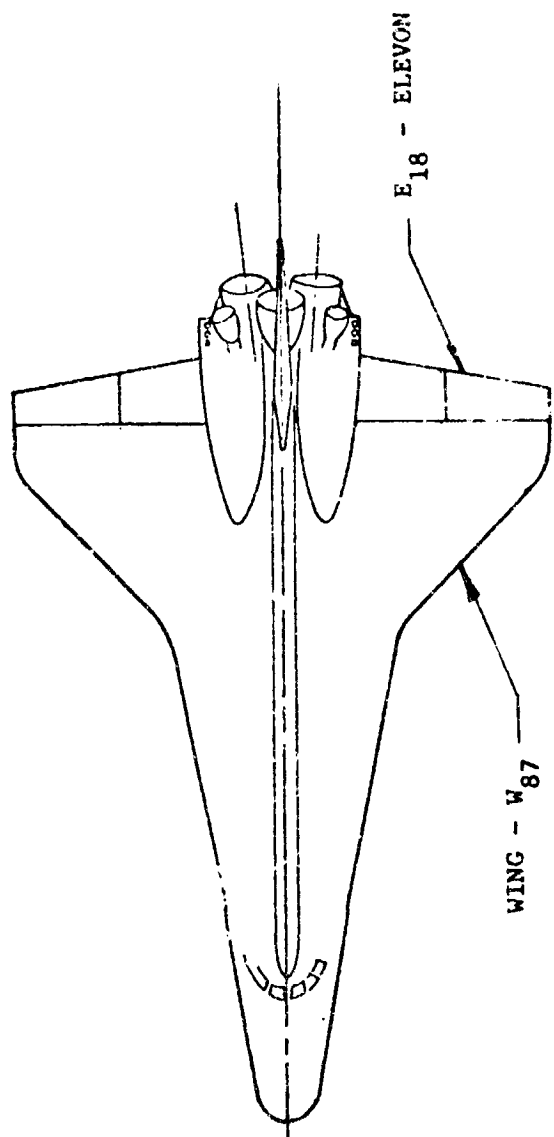


Figure 1. Axis systems.



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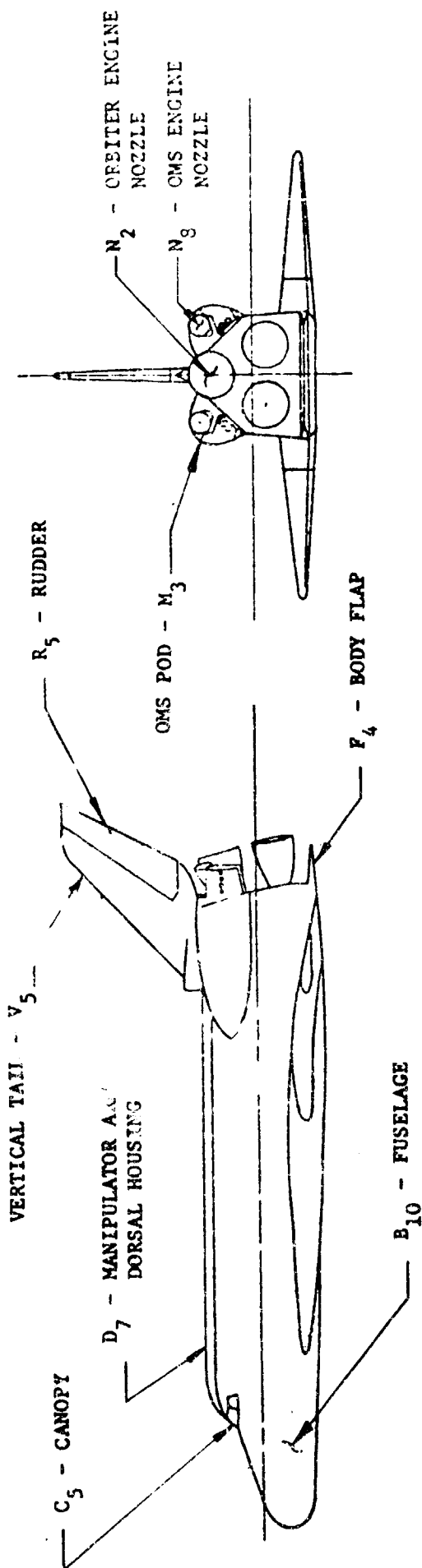


Figure 2(a). - Model Nomenclature.

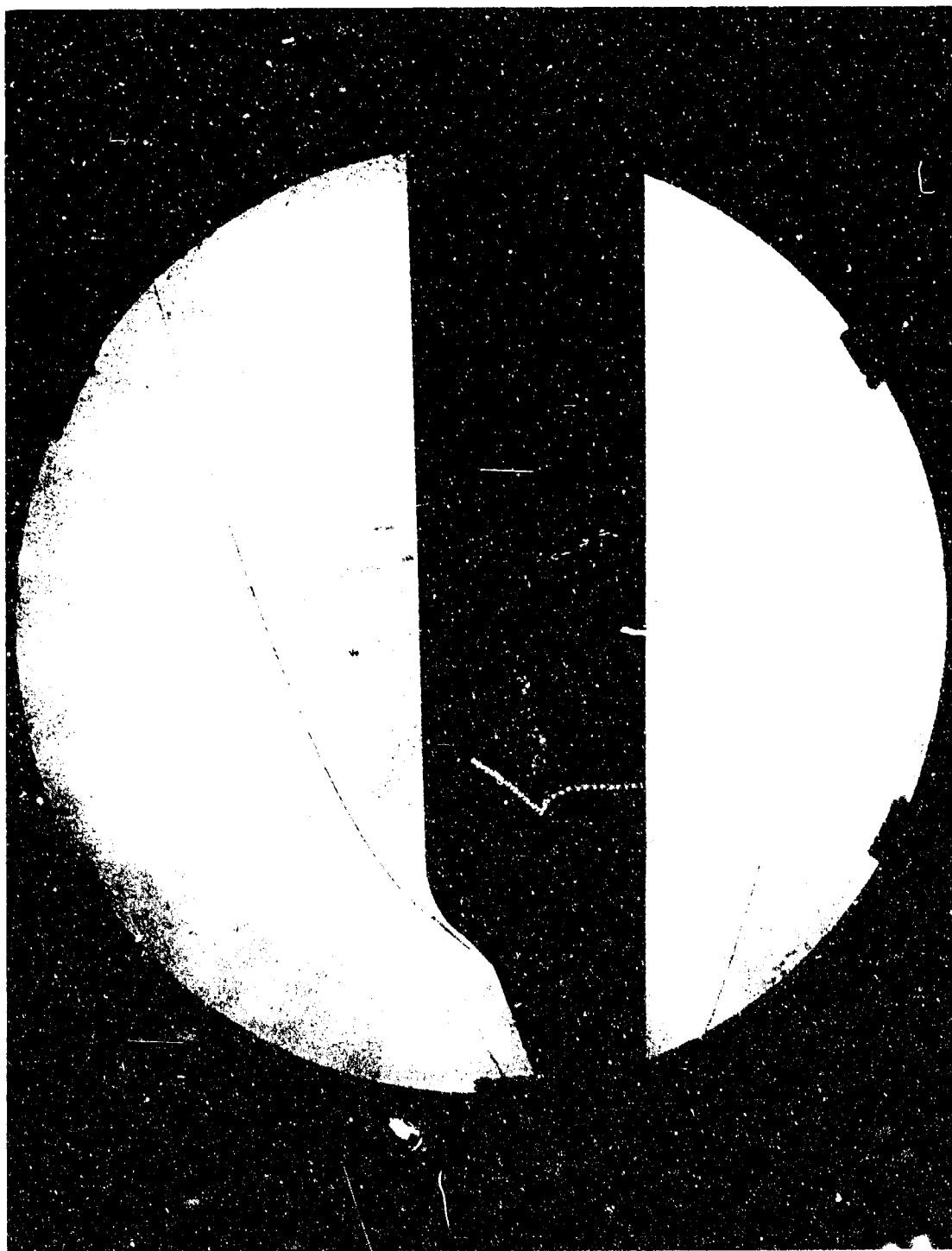


Figure 2(b). - Shadowgraph: $M=7.3$, $\alpha=0.5^\circ$, $\beta=0^\circ$, $\delta_{eL}=\delta_{er}=0^\circ$, $\delta_{SB}=54.92^\circ$, $\delta_{BF}=-14.75^\circ$, $\delta_R=0^\circ$

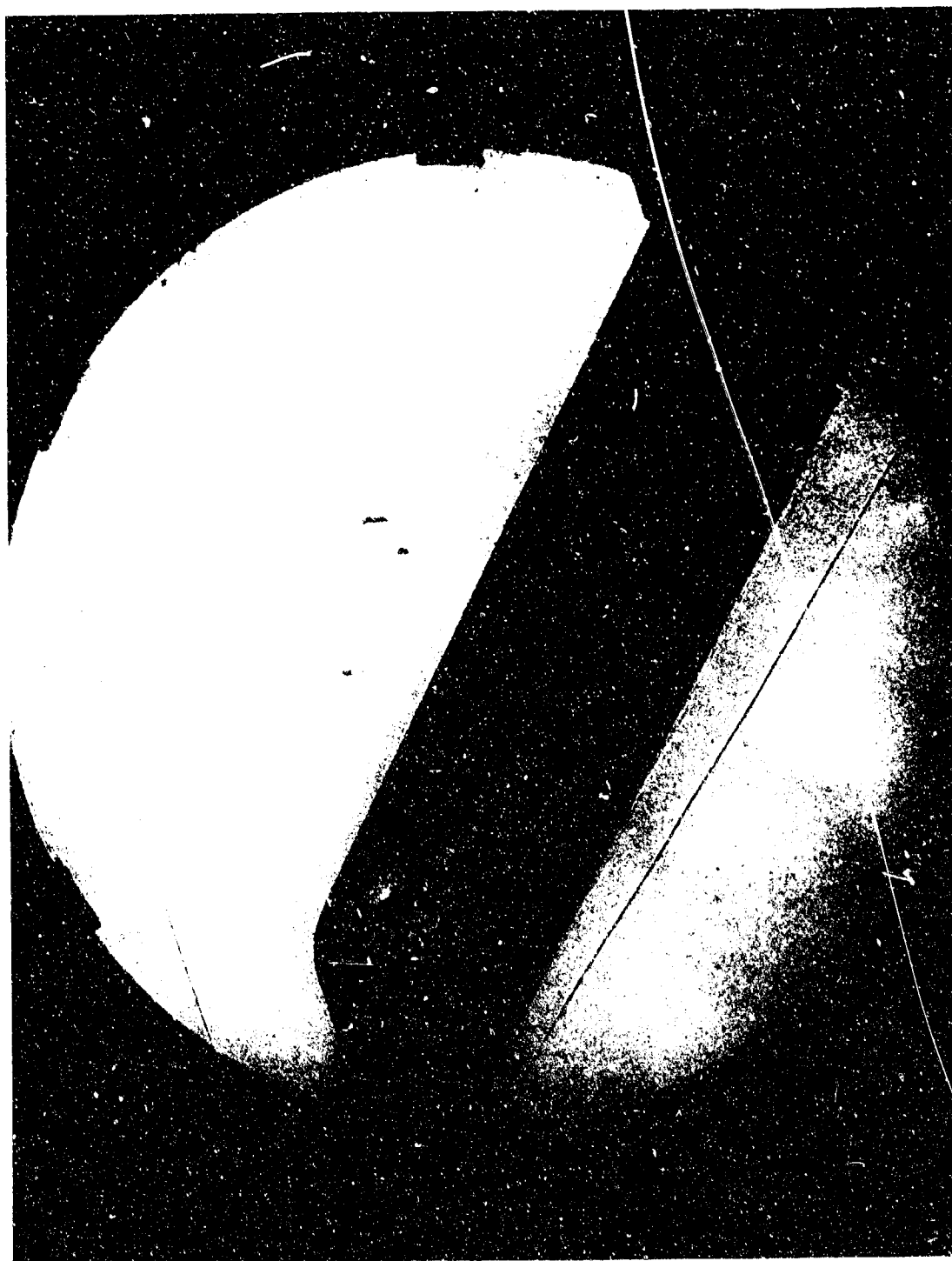
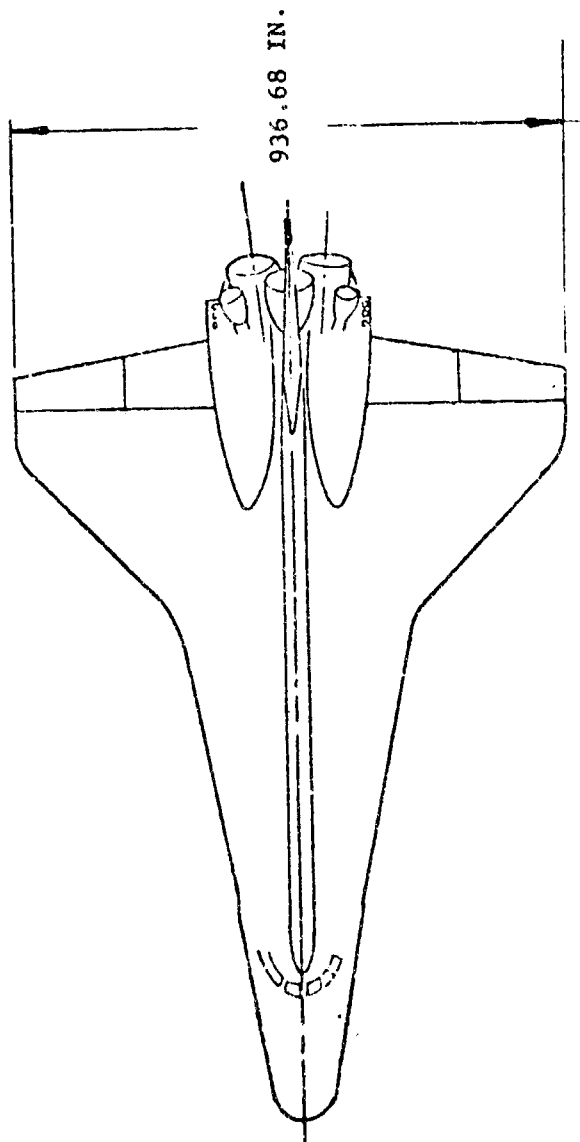


Figure 2(c). - Shadowgraph: $M=7.3$, $\alpha=27^\circ$, $\beta=0^\circ$, $\delta_{eL}=\delta_{eR}=-40^\circ$, $\delta_{SB}=54.9^\circ$, $\delta_{BP}=-14.75^\circ$, $\delta_R=60^\circ$



REFERENCE	DIMENSIONS
AREA	$S_w = 2690 \text{ FT}^2$
MAC	$\bar{c} = 474.8 \text{ IN.}$
C.G.	$x = 876.48 \text{ IN.}$
	$z = 400 \text{ IN.}$
SPAN	$b_w = 936.68 \text{ IN.}$
LENGTH	$L = 1328 \text{ IN.}$

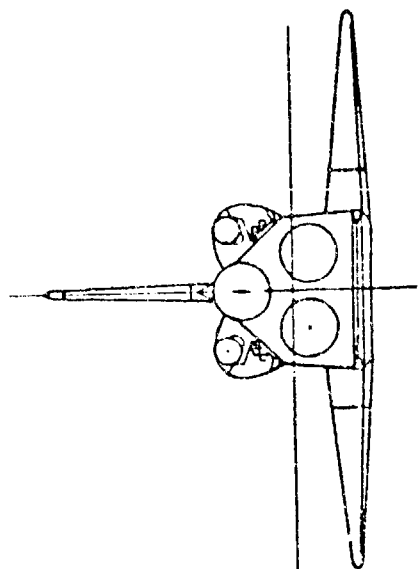
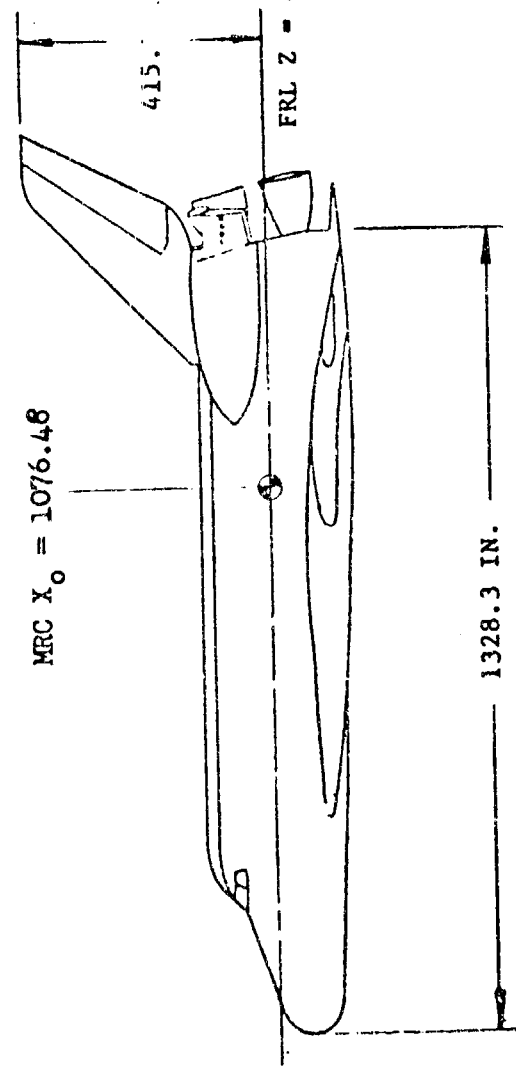


Figure 3(a). - SSV Orbiter 2A Configuration Baseline.

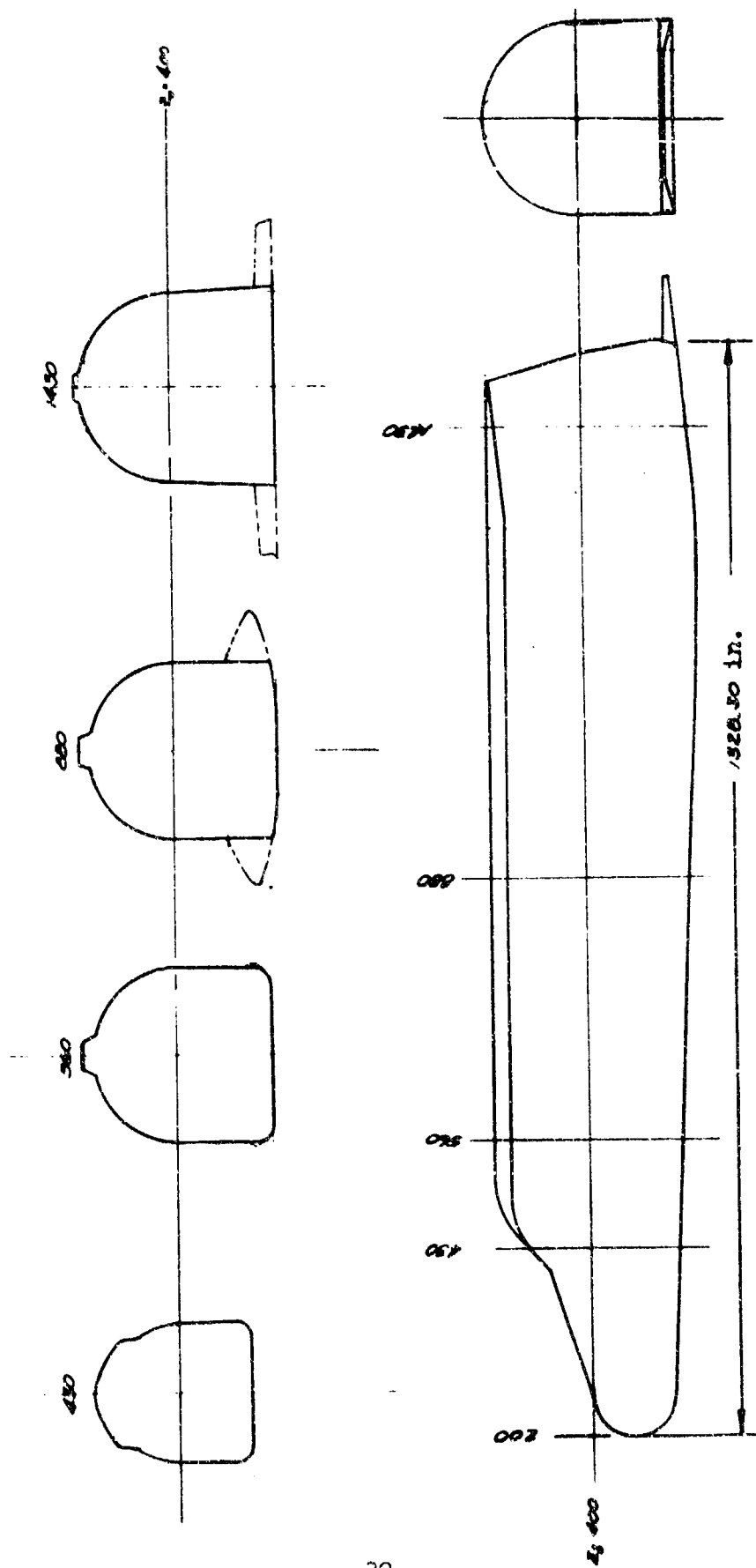


Figure 3(b). - B_{10} , F_4 - Basic 2A Fuselage with Body Flap.

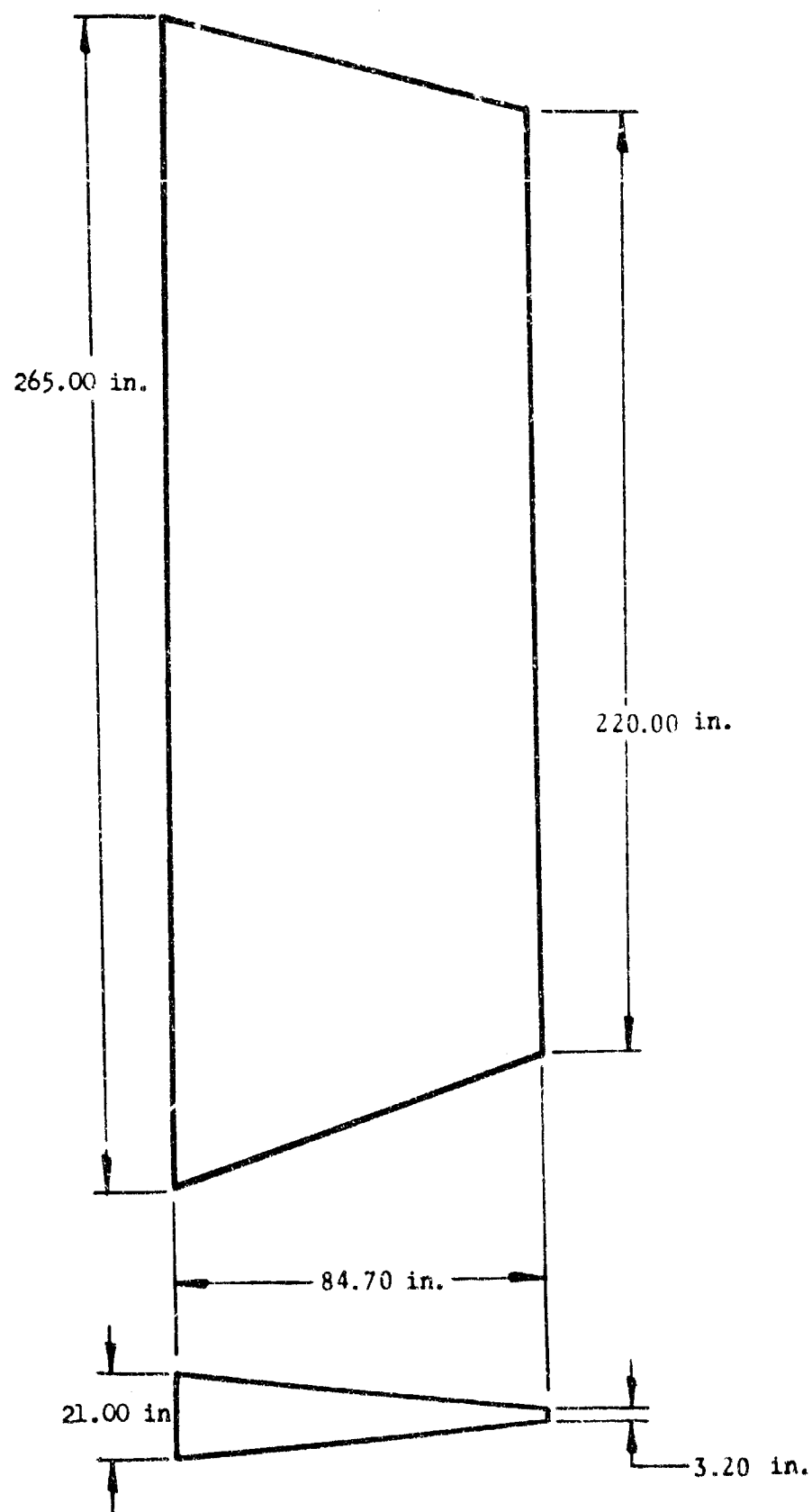


Figure 3(c). - F_4 - Body Flap.

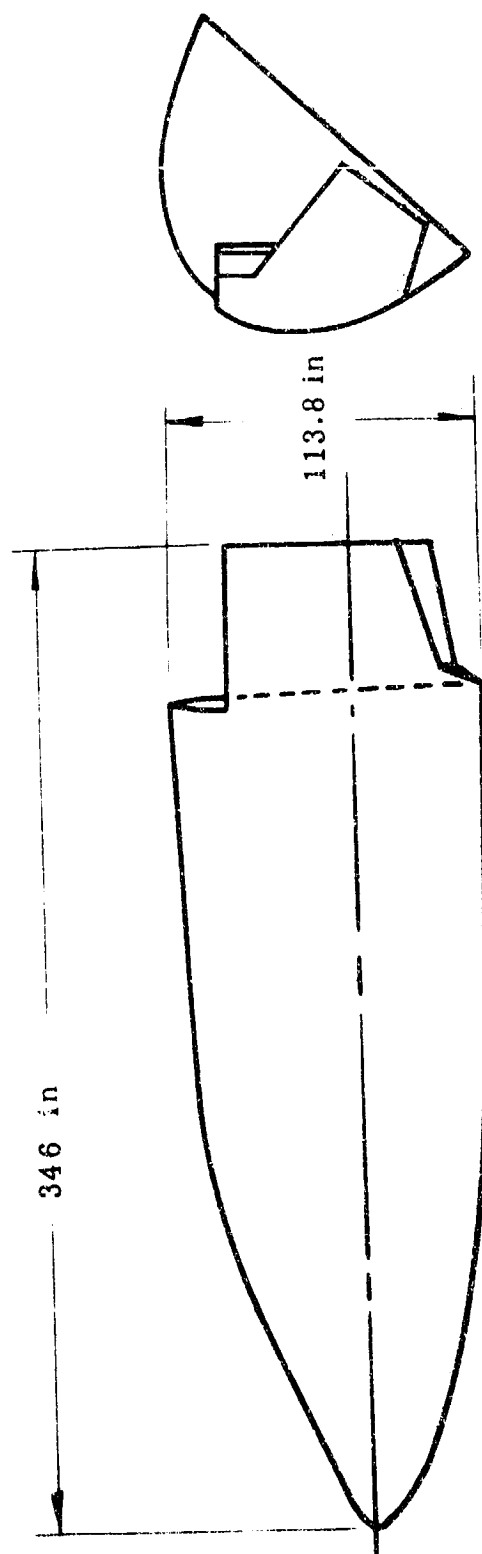
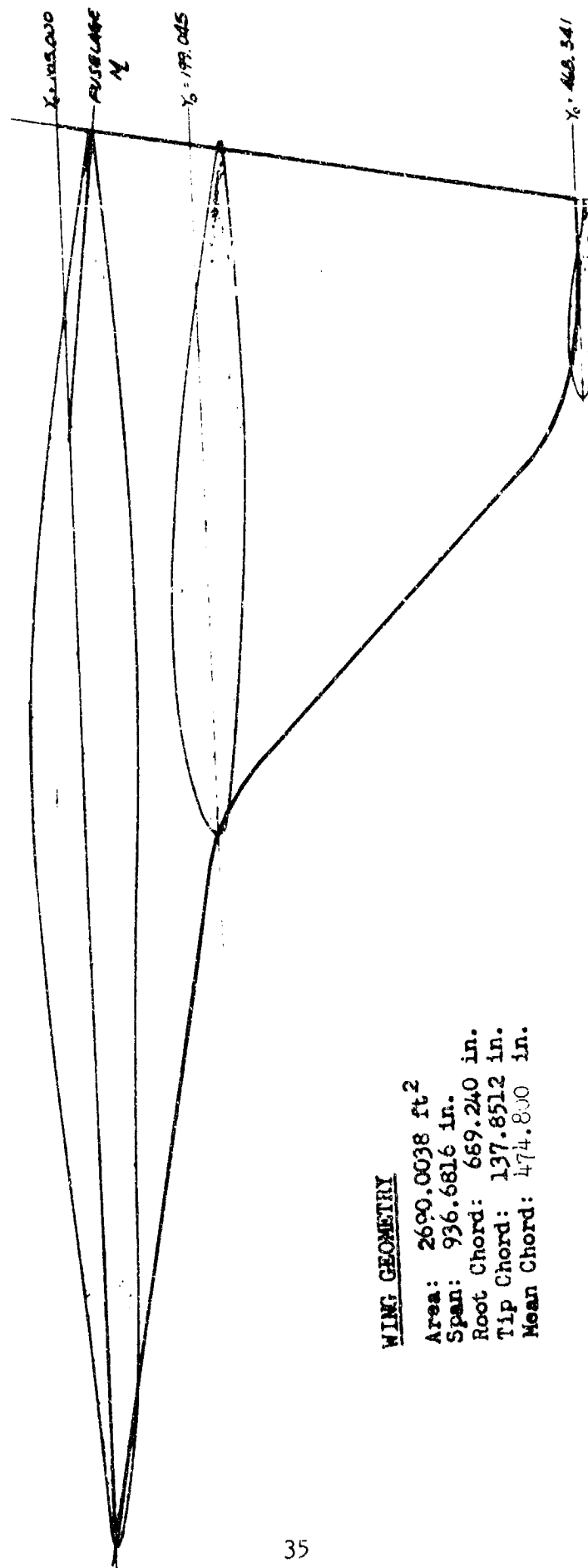


Figure 3(d). - M₃ - OMS Pod.



WING GEOMETRY

Area: 2690.0038 ft²
 Span: 936.6816 in.
 Root Chord: 669.240 in.
 Tip Chord: 137.8512 in.
 Mean Chord: 474.800 in.

Figure 3(e). - W87 - Basic 2A Wing Configuration.

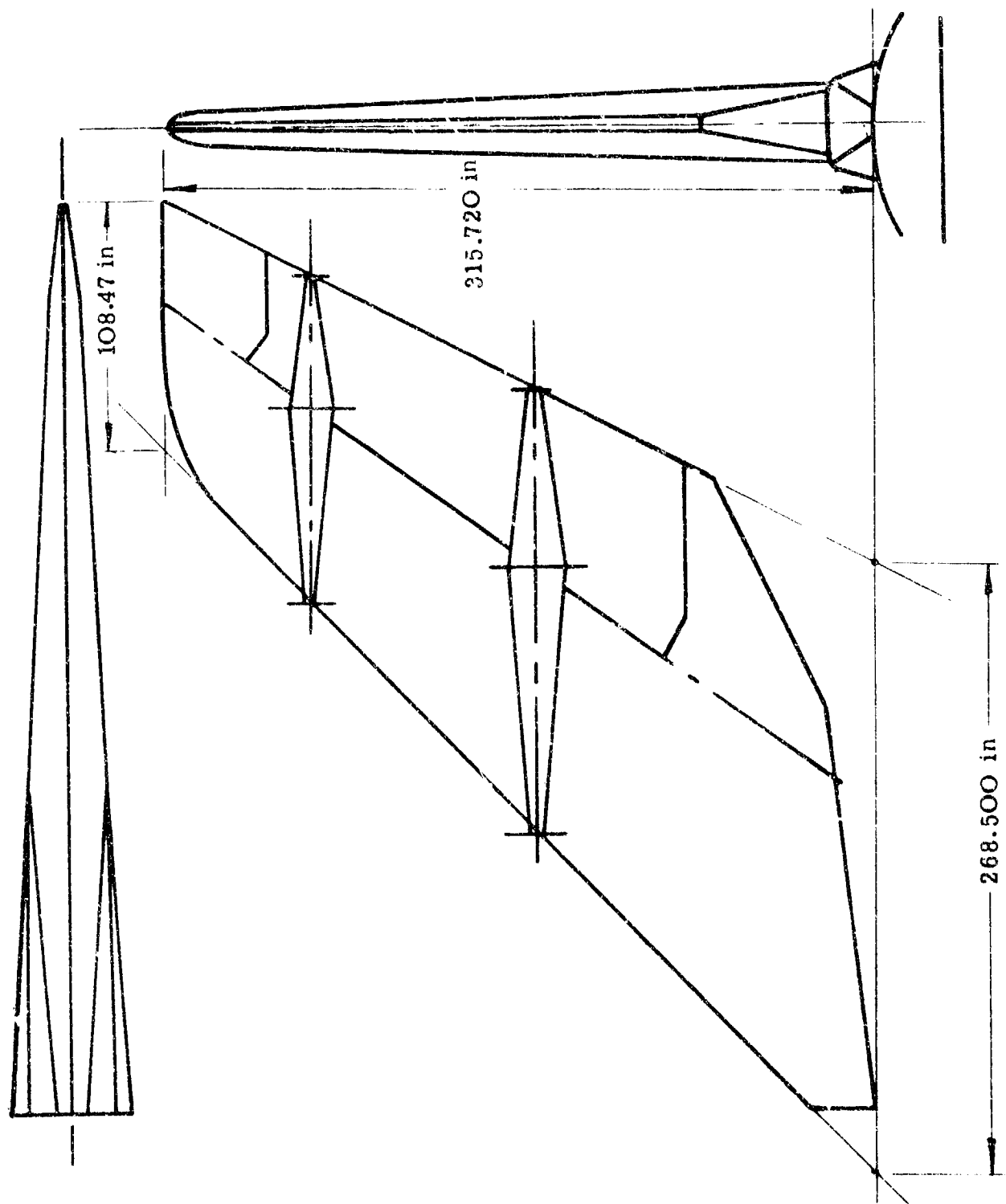


Figure 3(f). - V_5 - Vertical Tail.

DATA FIGURES

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 VSR5(RBS056)

SYMBOL	MACH	PARAMETRIC VALUES			
○	5.272	ELVN-L	.000	ELVN-R	.000
		SPOBRX	54.920	RUDDER	.000
		AILRON	.000	ELEVON	.000
		BDFLAP	-14.750	BETA	.000

REFERENCE INFORMATION

SREF	2690.0000	SC.FT.
LINE	474.8000	
REFIT	936.6800	
YREF	1076.4800	
YMRP	.0000	
ZMRP	400.0000	
SCALE	.0150	

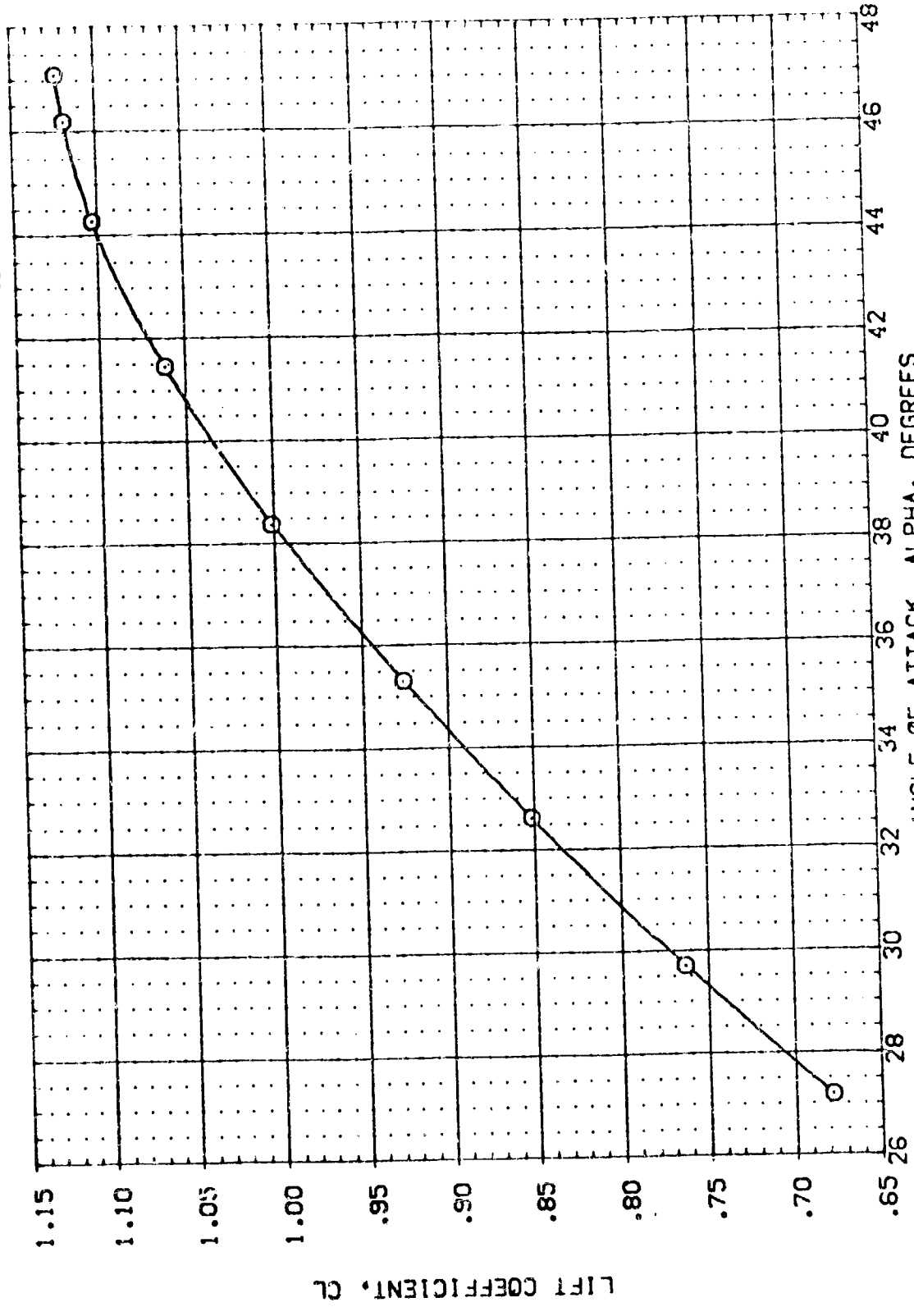


FIG. 4 TOTAL VEHICLE CHARACTERISTICS, M=5.27, BDFLAP=-14.75 DEG.- FWD. C.G. PAGE

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5(RBS056)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION			
		ELVN-L	ELVN-R	ELVN-R		SREF	LREF	BREF	SCALE
○	5.272	.000	.000	.000		2690.0000	474.8000	935.6800	1076.4800
		SPOBR	54.920	RUDER	.000	400.0000	400.0000	400.0000	10.150
		ATLRN	.000	ELEVON	.000				
		BOFLAP	-14.750	BETA	.000				

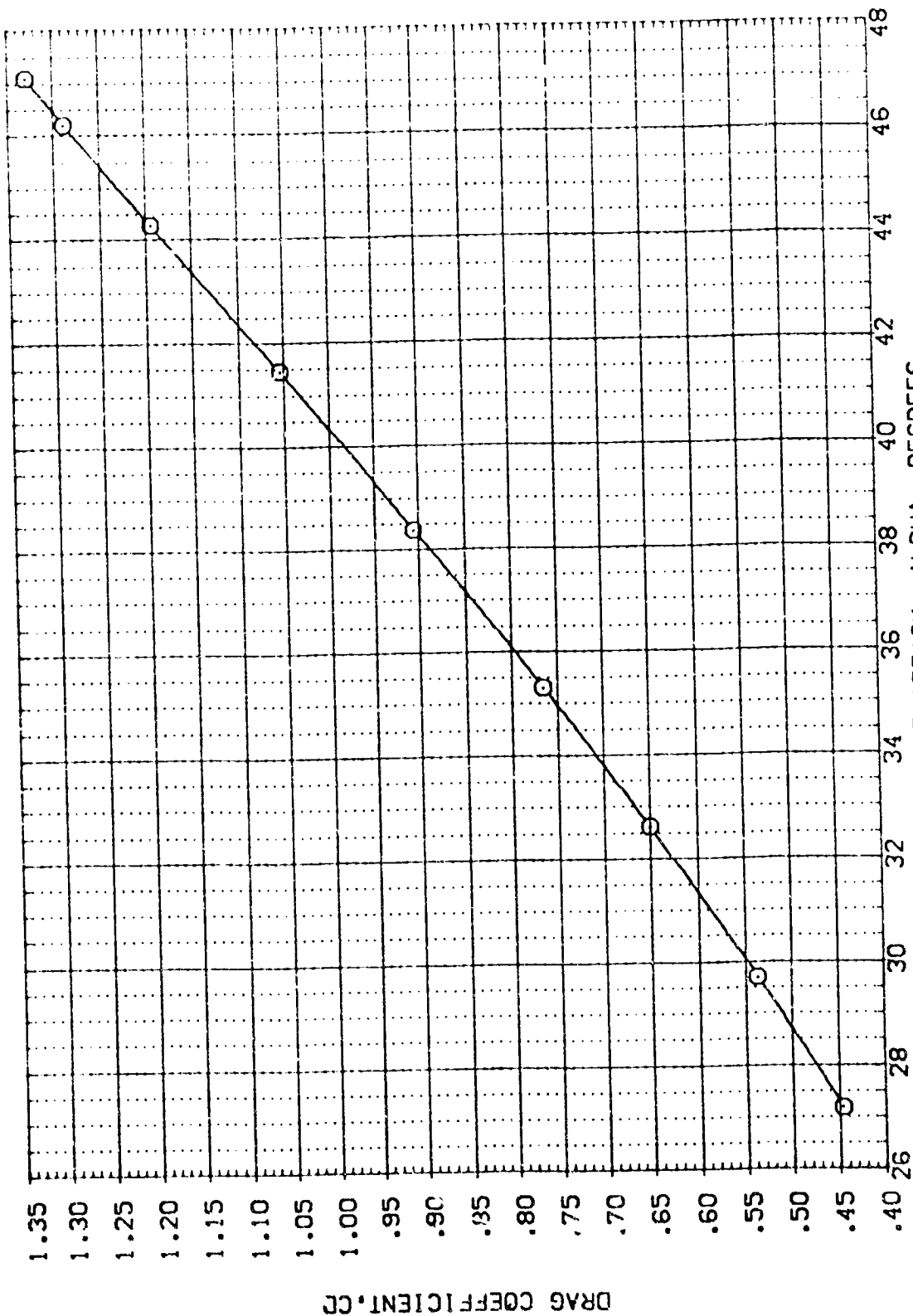


FIG. 4 TOTAL VEHICLE CHARACTERISTICS, M=5.27, BOFLAP=-14.75 DEG.- FWD. C.G.

III

AMES 3.5-157-0A11A 810C5 07 F4 N8 M3 W87E18 VSRJ (RBS056)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION			
○	5.272	ELVN-L	.000	ELVN-R	.000	SREF	2690.0000	SC.FT.	
		SPOBRK	54.920	RUDER	.000	LREF	474.8000		
		AILERON	.000	ELEVON	.000	BREF	936.6800		
		BOFLAP	-14.750	BETA	.000	XMRP	1076.4800		
						YMRP	.0000		
						ZMRP	400.0000		
						SCALE	.0150		

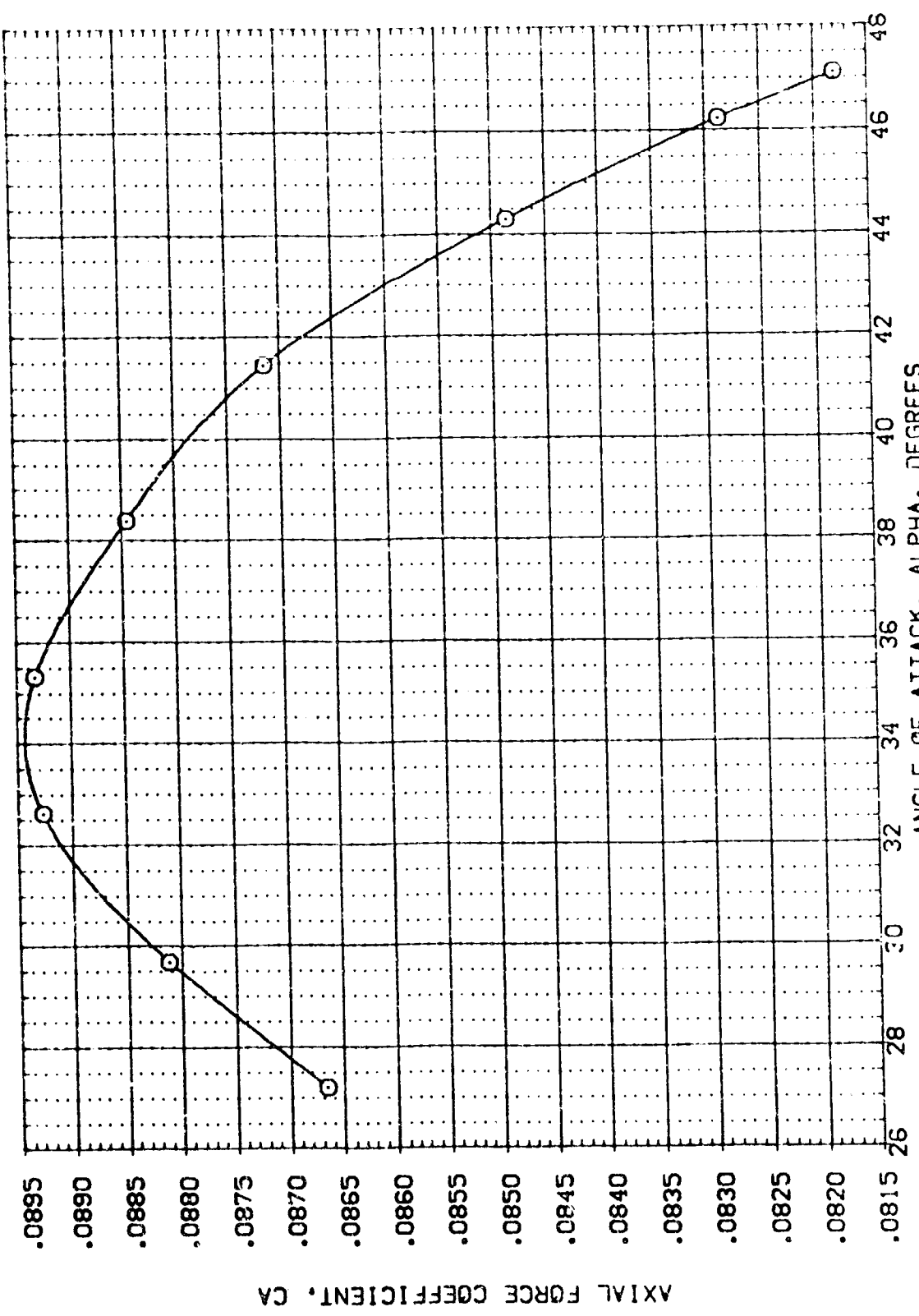


FIG. 4 TOTAL VEHICLE CHARACTERISTICS, M=5.27, BOFLAP=-14.75 DEG. - FWD. C.G.

AMES 3.5-157-0A11A B1005 D7 F4 N8 M3 W8/E18 V0R0(NB50306)

REFERENCE INFORMATION
 SREF 2690.0000 SQ. FT.
 LREF 474.8000
 BREF 935.8500
 VREF 1076.4800
 WREF 400.0000
 ZREF 400.0000
 SCALE .0150

PARAMETRIC VALUES
 ELVN-L .000 ELVN-R .000
 SPDRK 54.920 RUDER .000
 AILRON .000 ELEVON .000
 BOFLAP -14.750 BE"A .000

SYMBOL
 ○
 MACH 5.272

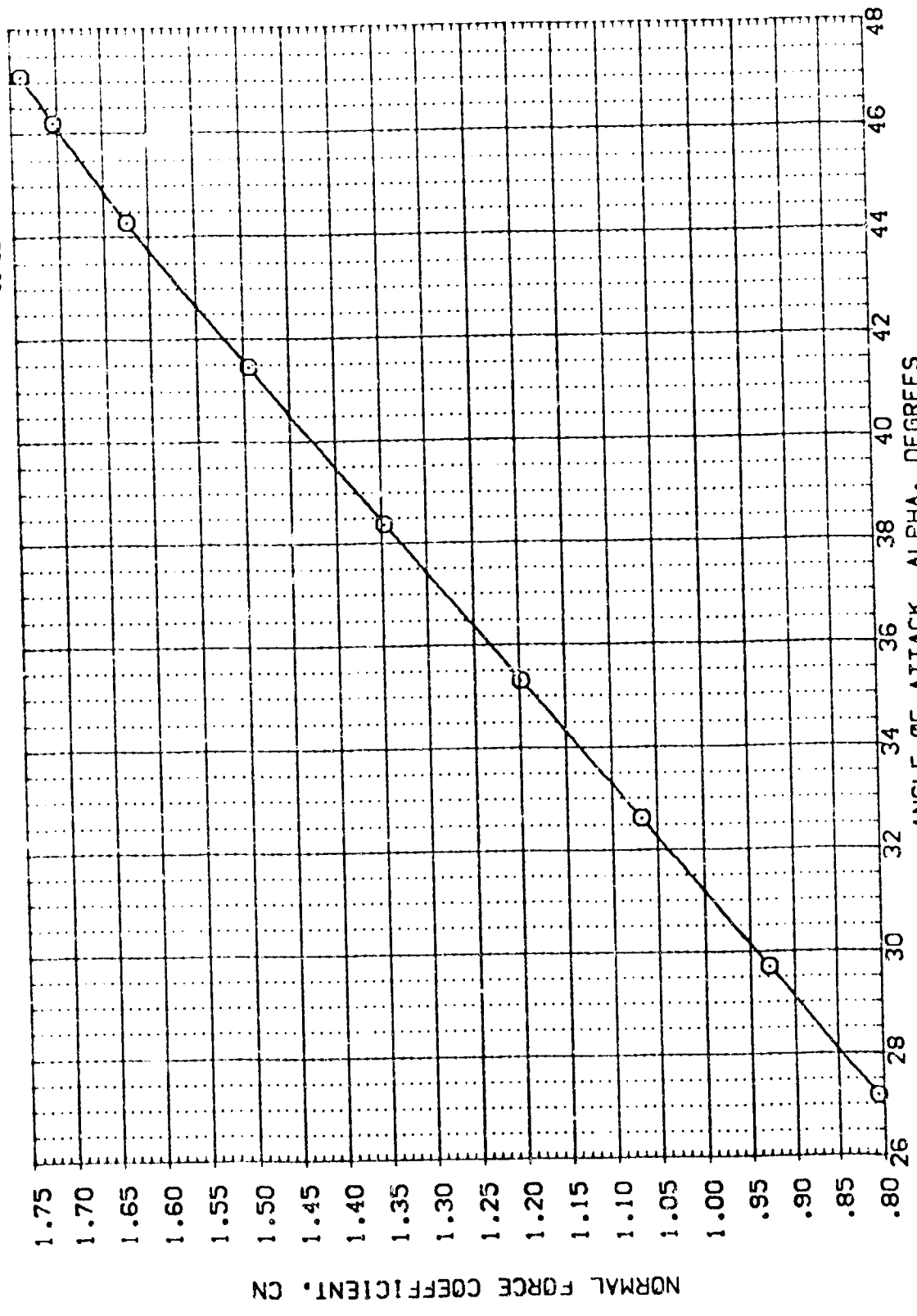


FIG. 4 TOTAL VEHICLE CHARACTERISTICS, M=5.27, BOFLAP=-14.75 DEG.- FWD. C.G.
 PAGE 4

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87F18 V5R5(RBS056)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
		ELVN-L	ELVN-R	ELVN-R	ELVN-R	SPRF	SG.FT.
○	5.272	SPDRX	54.920	RJDER	.000	LBRE	474.8000
		AILRON	.000	ELEVN	.000	BREF	936.6800
		BOFLAP	-14.750	BETA	.000	XREF	1076.4800
						YREF	.0000
						ZREF	400.0000
						SCALE	.0150

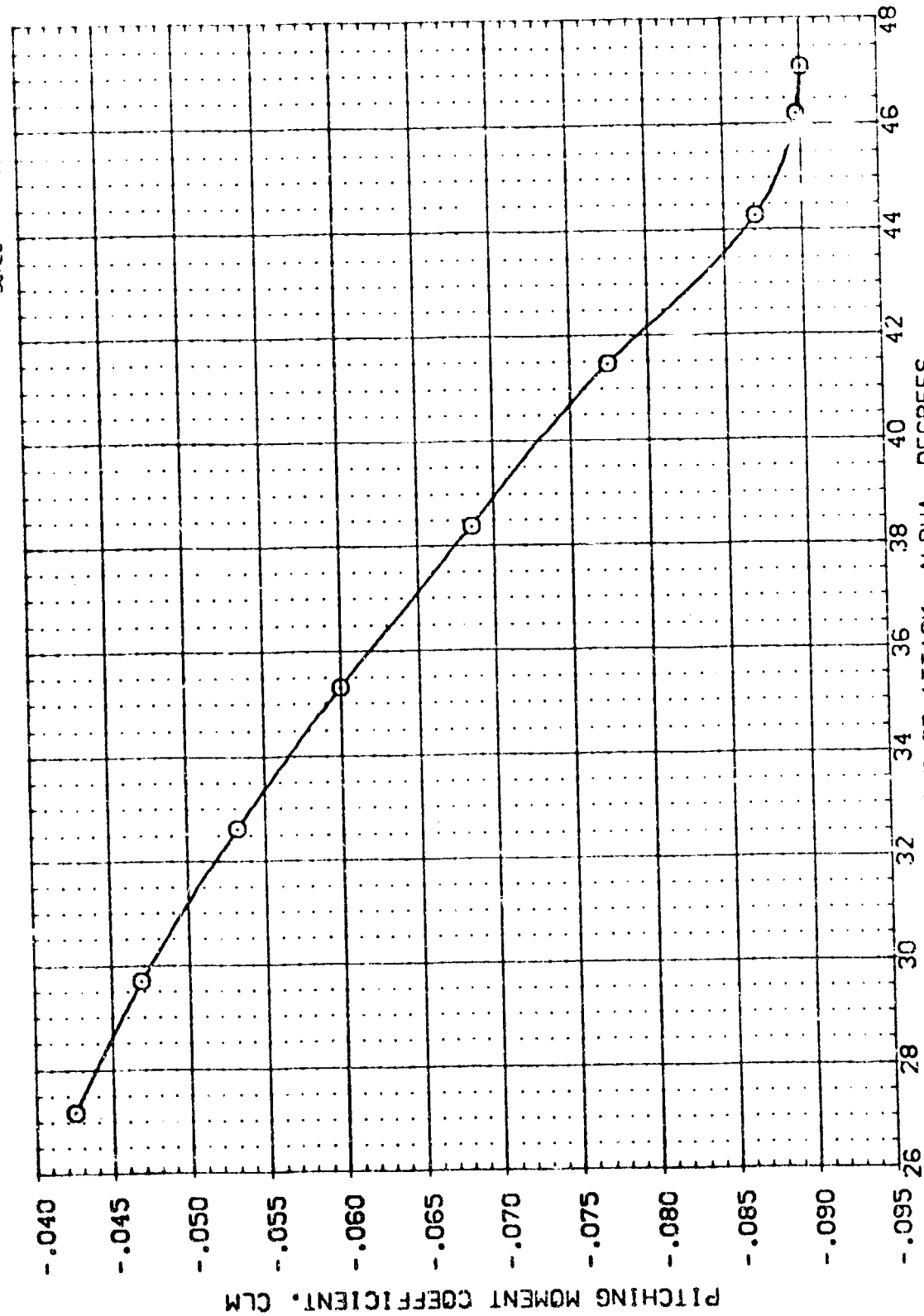


FIG. 4 TOTAL VEHICLE CHARACTERISTICS, M=5.27, BOFLAP=-14.75 DEG.- FWD. C.G.

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5(BBS056)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION			
		ELVN-L	ELVN-R	ELVN-B	ELVN-T	SPRF	LREF	BREF	SCALE
○	5.272	.000	.000	.000	.000	2690.0000	474.8000	936.6800	1103.2400
		SPCRN	54.920	RUCOR	.000	400.0000	400.0000	400.0000	400.0000
		ALRBN	.000	ELEVN	.000	SCALE	SCALE	SCALE	SCALE
		BYFLAP	-14.750	BETA	.000				

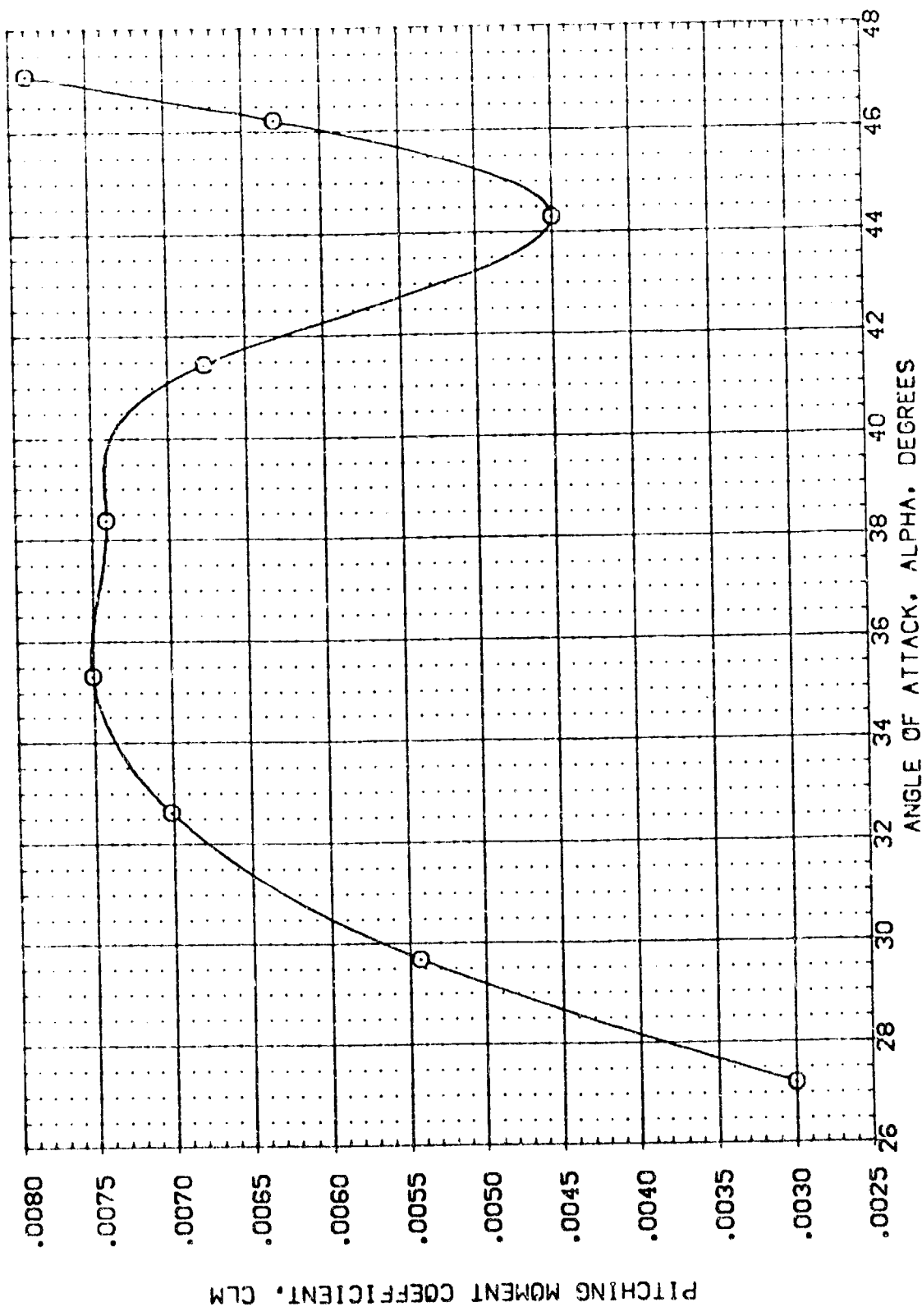


FIG. 4 TOTAL VEHICLE CHARACTERISTICS, M=5.27, BOFLAP=-14.75 DEG.- AFT. C.G.



AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5 (RBS056)

SYMBOL ○ MACH 5.272
PARAMETRIC VALUES
ELVN-L .000 ELVN-R .000
SPDRK 54.920 RUDDER .000
AILRON .000 ELEVON .000
BOFLAP -14.750 BETA

REFERENCE INFORMATION
SREF 2690.0000 SQ.FT.
LREF 474.8000
BREF 936.8300
XPRP 1076.8800
YPRP .0000
ZPRP 400.0000
SCALE .0150

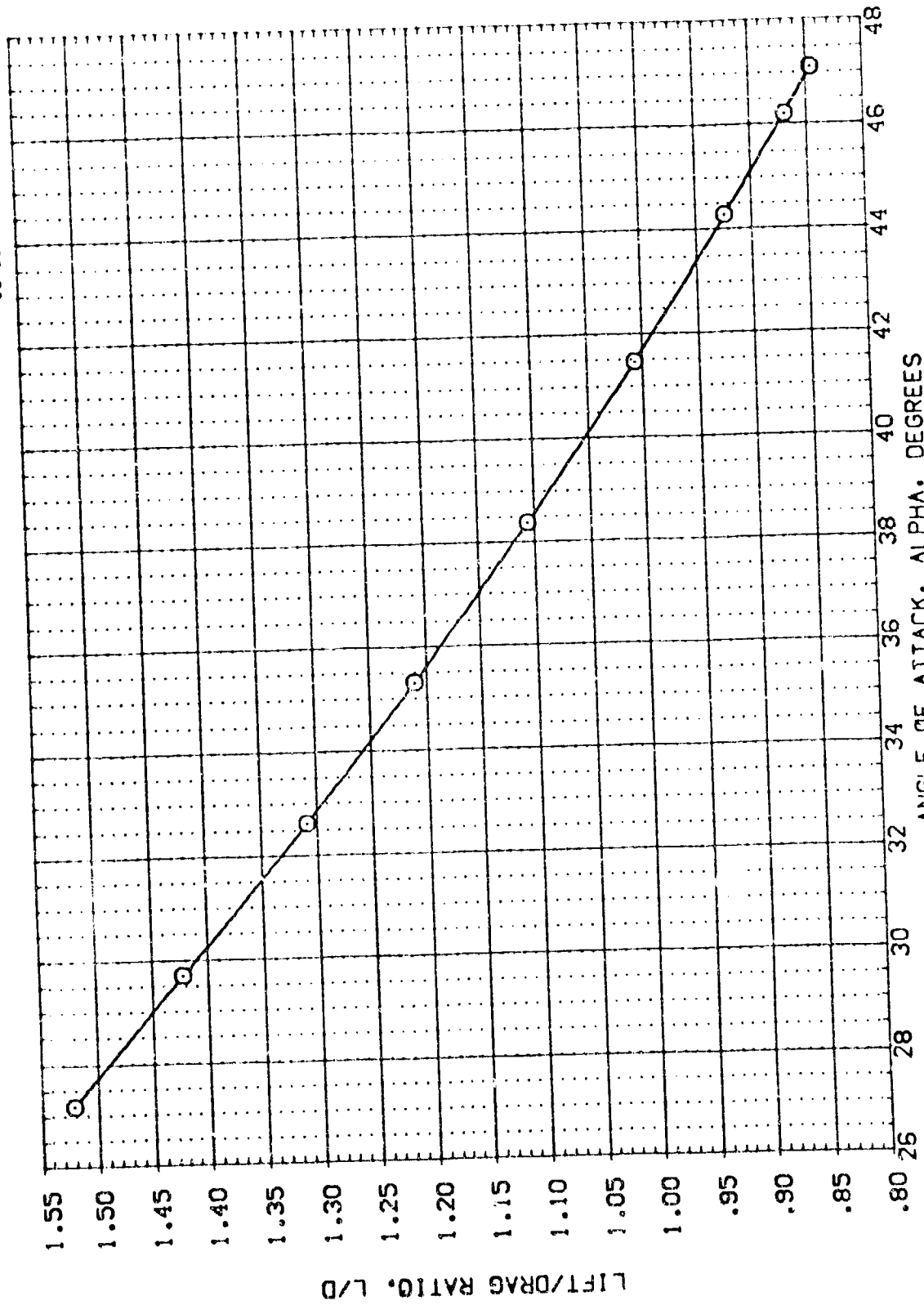


FIG. 4 TOTAL VEHICLE CHARACTERISTICS, M=5.27, BOFLAP=-14.75 DEG.- FWD. C.G. PAGE 7

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5 (R8S056)

SYMBOL MACH
O 5.272

PARAMETRIC VALUES
ELVN-L .000 ELVN-R .000
SPDRK 54.920 RUDDER .000
AILRON .000 ELEVON .000
BOFLAP -14.750 BETA .000

REFERENCE INFORMATION
SREF 2690.1707 SQ.FT.
LREF 474.8640
BREF 936.8800
XPRP 1076.4800
YPRP .0000
ZPRP .0000
SCALE 400.0000
SCALE 10150

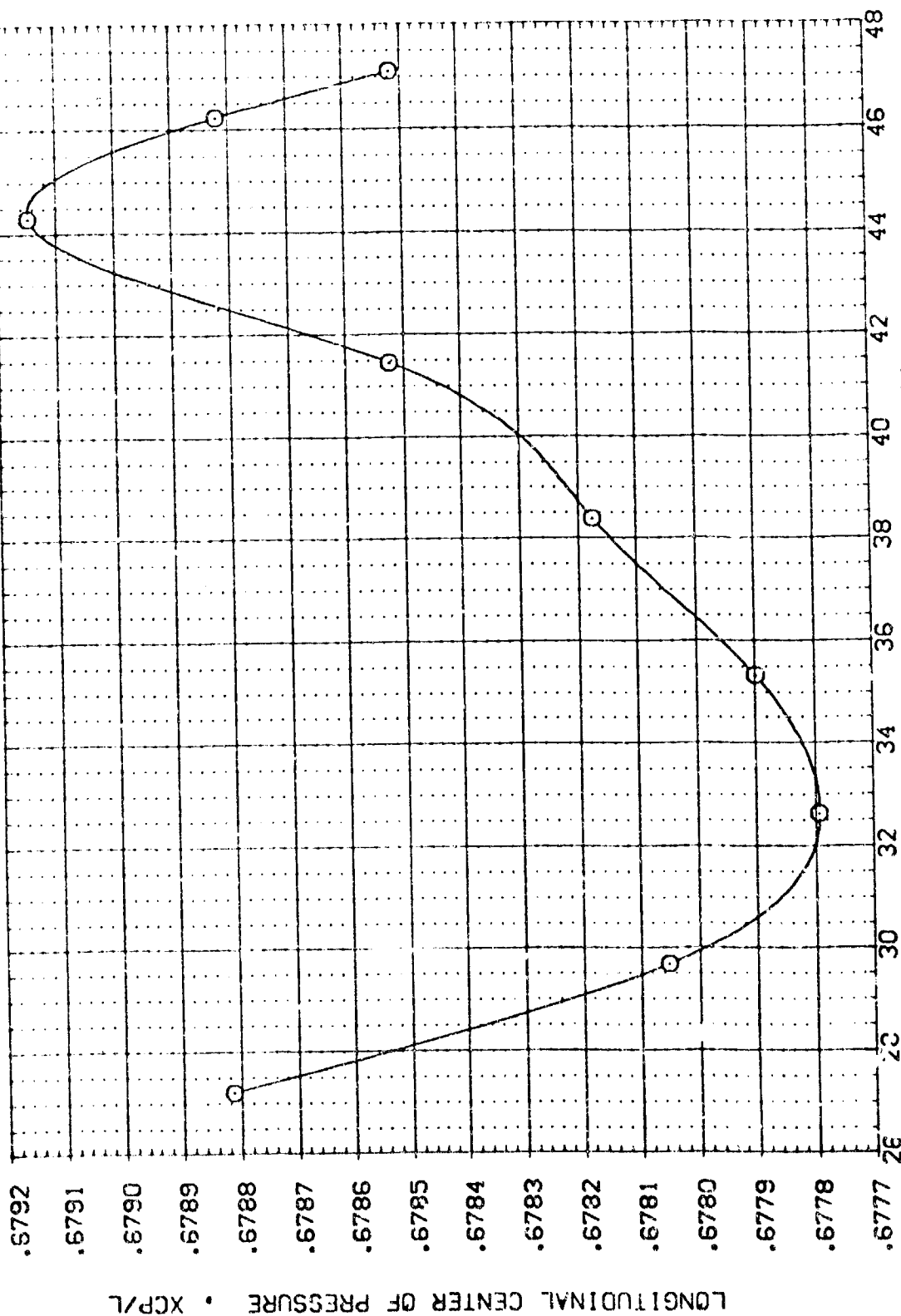


FIG. 4 TOTAL VEHICLE CHARACTERISTICS, M=5.27, BOFLAP=-14.75 DEG.- FWD. C.G.

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5(RBS056)

SYMBOL: \bigcirc MACH: 5.272

REFERENCE INFORMATION:
 SREF 2690.0000
 LREF 474.8000
 BREF 836.5800
 XREF 1076.1800
 YREF .0000
 ZREF 400.0000
 SCALE .0150

PARAMETRIC VALUES

ELVN-L	.000	ELVN-R	.000
SPOBRK	54.970	RUDGR	.000
AILRON	.000	ELEVON	.000
BDFLAP	-14.750	BETA	.000

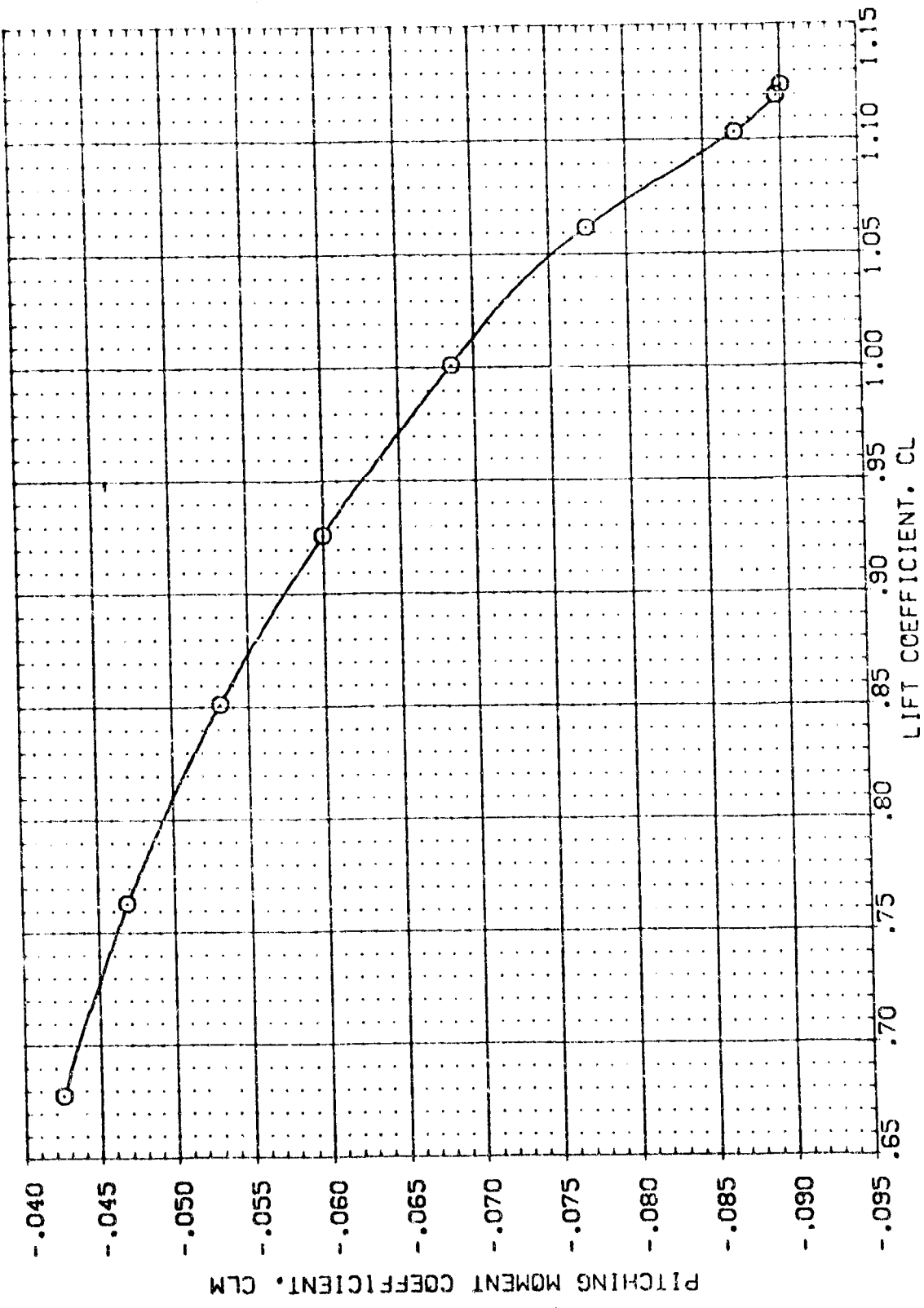


FIG. 4 TOTAL VEHICLE CHARACTERISTICS, M=5.27, BDFLAP=-14.75 DEG. - FWD. C.G.

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5(RBS056)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
		ELVN-L	ELVN-R	ELVN	ELVN	STREF	SC.F.
○	5.272	54.920	54.920	54.920	54.920	2690.0000	474.8000
		SP080K	R000R	R000R	R000R	936.6800	1076.4800
		AILRON	ELEVON	ELEVON	ELEVON	100.0000	100.0000
		BOFLAP	BETA	BETA	BETA	400.0000	101.50
						SCALE	SCALE

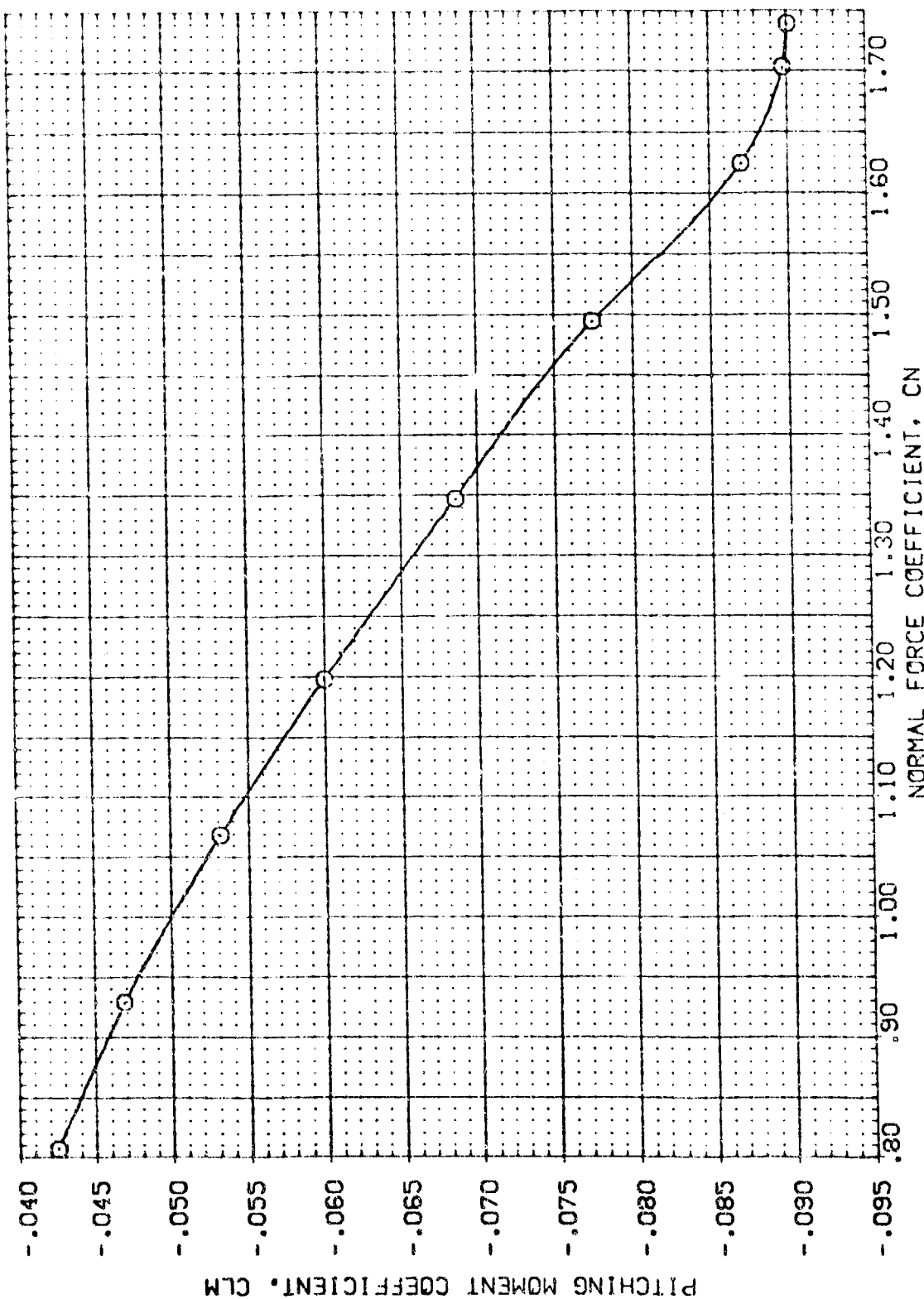


FIG. 4 TOTAL VEHICLE CHARACTERISTICS, M=5.27, BOFLAP=-14.75 DEG.- FWD. C.G.

AMES 3.5-157-CA11A B10C5 D7 F4 N8 M3 W87E18 VSR5(RBS056)

SYMBOL MACH
O 5.272

PARAMETRIC VALUES
ELVN-L .000 ELVN-R .000
SPDRK 54.970 RUDDER .000
ALLRON .000 ELEVON .000
BDFLAP -14.750 BETA .000

REFERENCE INFORMATION
SREF 2690.0000 SQ. FT.
LREF 474.8000
BREF 935.8900
VREF 1076.4900
WREF 100.0000
ZREF 100.0000
SCALE .0150

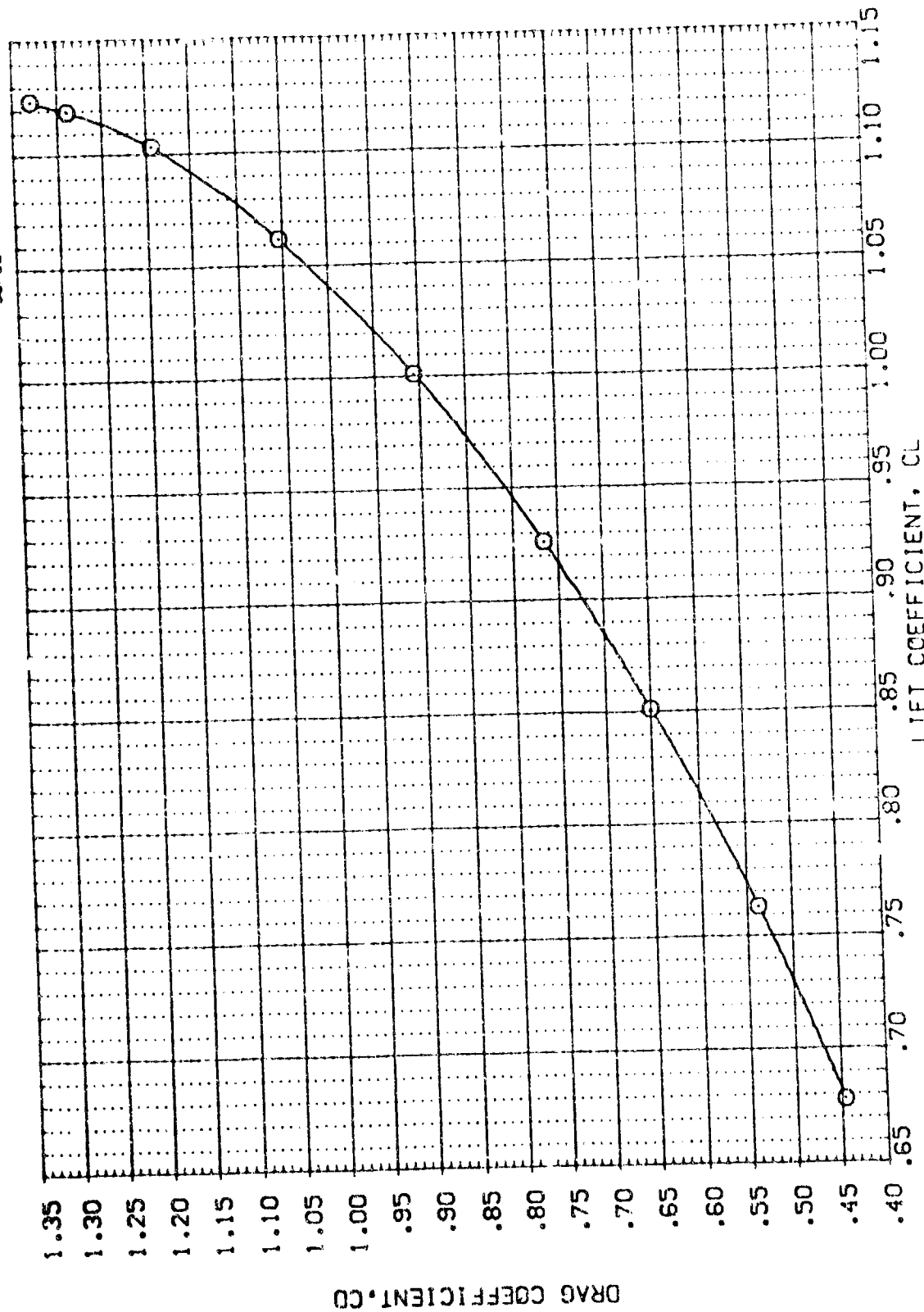


FIG. 4 TOTAL VEHICLE CHARACTERISTICS, M=5.27, BDFLAP=-14.75 DEG.- FWD. C.G.

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5(G9S043)

SYMBOL	MACH	PARAMETRIC VALUES	REFERENCE INFORMATION
○	7.320	ELV-HL .000 ELV-HR .000	SPRF 2680.0000
		SPDRBK 54.820 PLACER .000	REF 1174.8000
		ATLRON .000 ELEVH .000	BREF 936.8500
		BDFLAP -14.750 BETA .000	XREF 1076.4800
			VREF .0000
			ZREF 100.0000
			SCALE .0150

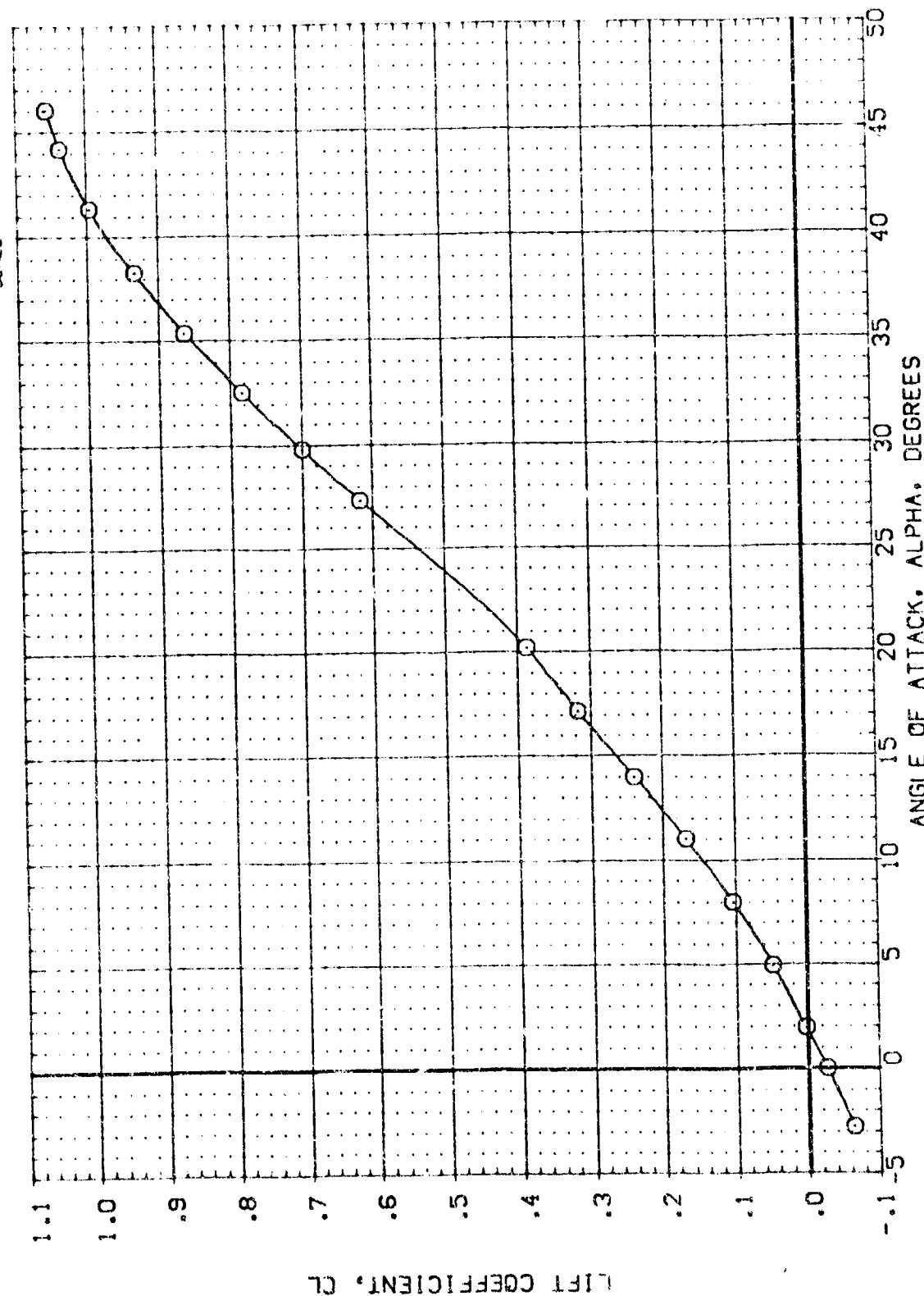


FIG. 5 TOTAL VEHICLE CHARACTERISTICS, M=7.32, BDFLAP=-14.75 DEG.- FWD. C.G.

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5 (GBS043)

SYMBOL	MACH	PARAMETRIC VALUES	REFERENCE INFORMATION
○	7.320	ELVN-L SPDRK AILRON BOFLAP	<div> <div>2600.0000</div> <div>474.8000</div> <div>936.8000</div> <div>1075.8000</div> <div>2400.0000</div> <div>400.0000</div> <div>10.50</div> </div> <div> <div>SCALE</div> <div>SCALE</div> </div>

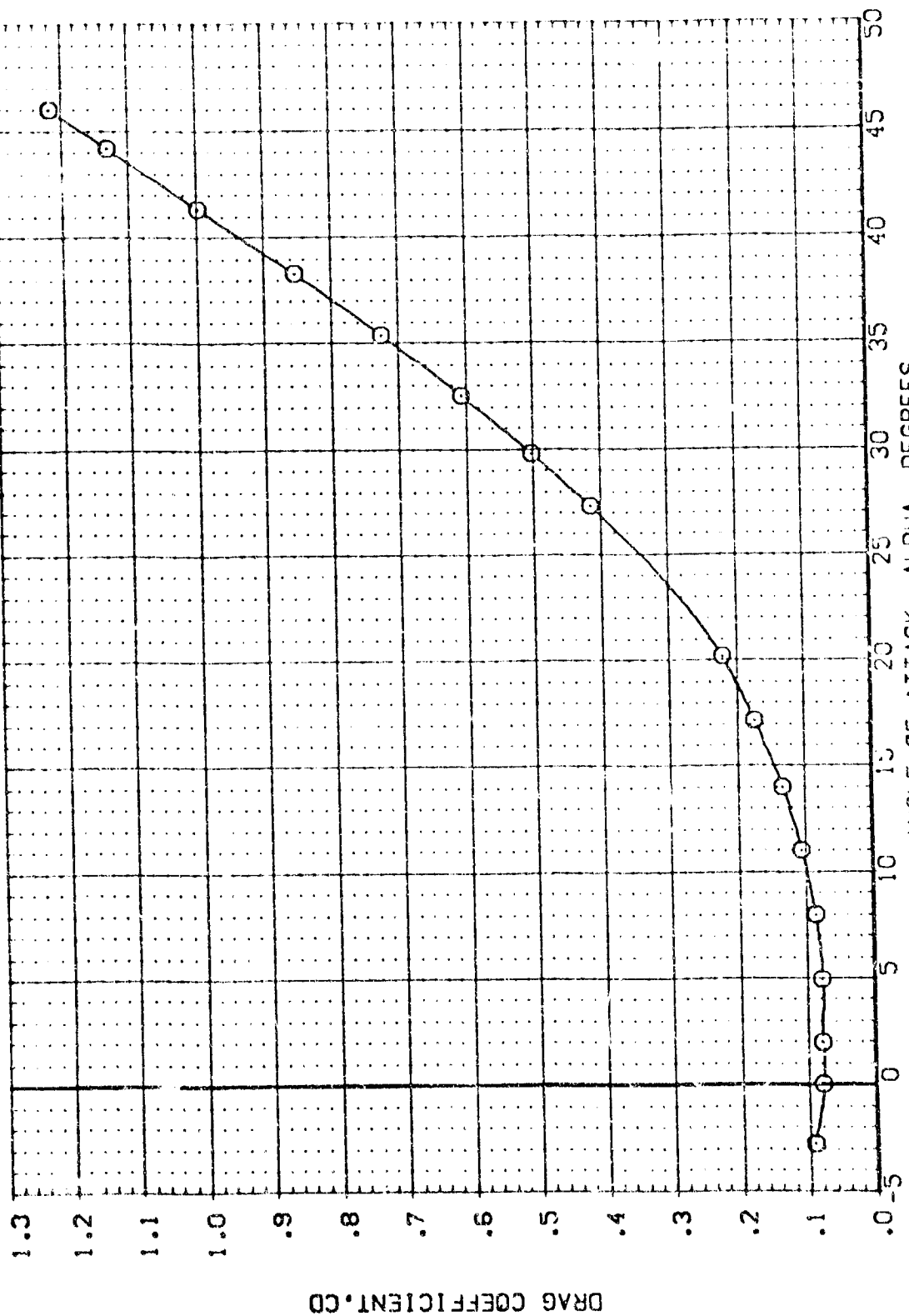


FIG. 5 TOTAL VEHICLE CHARACTERISTICS, $M=7.32$, $BOFLAP=-14.75$ DEG.- FWD. C.G.

AMES 3.5-157-0A11A B10C5 07 F4 N8 M3 N87E18 VSR5(GBS043)

SYMBOL ○

MACH 7.320

PARAMETRIC VALUES

ELVN-L ELVN-R .000
 SPOBRK .000
 ALLRON .000
 BOFLAP -14.75
 BETA .000

REFERENCE INFORMATION
 SAGF 2690.0000
 LREF 474.8000
 BREF 936.6900
 XPRG 1076.1800
 YPRG 1000.0000
 ZPRG 400.0000
 SCALE 10150

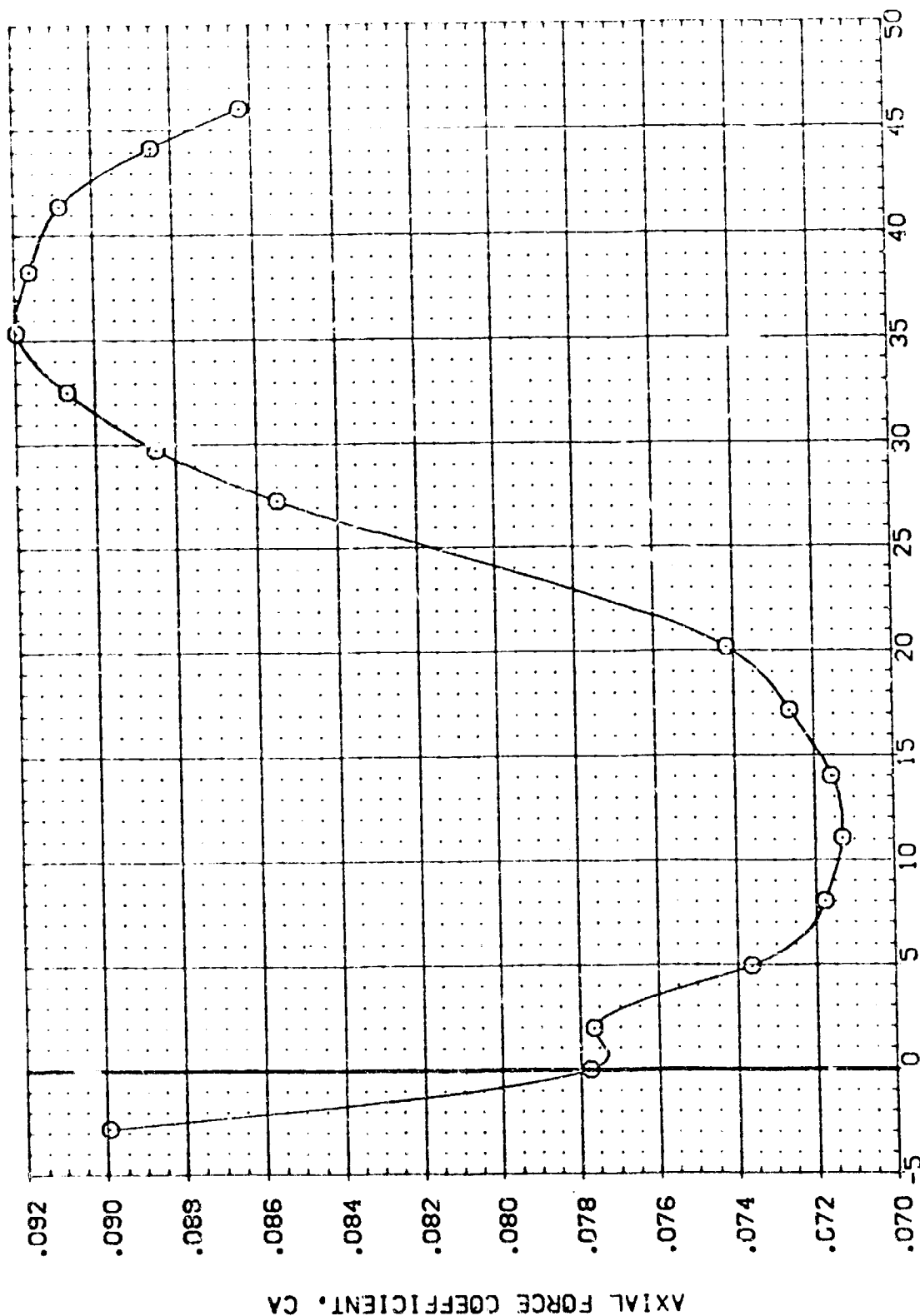


FIG. 5 TOTAL VEHICLE CHARACTERISTICS, M=7.32, BOFLAP=-14.75 DEG.- FWD. C.G.

AMES 3.5-157-0A11A B10C5 07 F4 N8 M3 W87E18 V5R5(GBS043)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION			
		ELVN-L	ELVN-R	ELVN	ELVN	SREF	2690.0000	50.0	50.0
○	7.320	SPDRK	54.920	PLDGR	.000	LREF	474.8000	10.0	10.0
		AL-ROX	.000	ELEVEN	.000	BRDF	935.6000	10.0	10.0
		BDFLAP	-14.750	BETA	.000	WREF	1076.4000	10.0	10.0
						WREF	400.0000	10.0	10.0
						SCALE	10.0	10.0	10.0

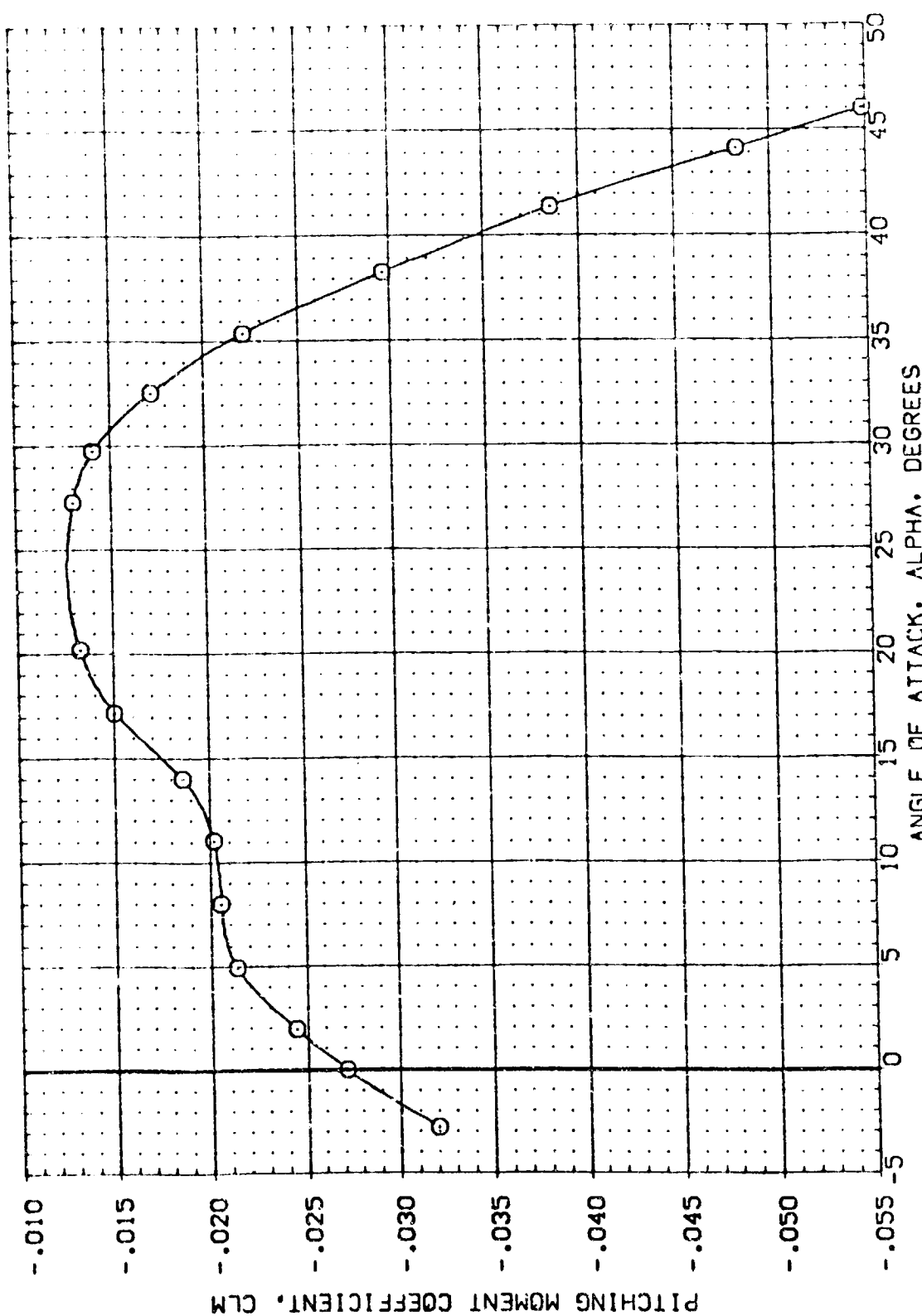


FIG. 5 TOTAL VEHICLE CHARACTERISTICS, M=7.32, BDFLAP=-14.75 DEG. - FWD. C.G.

AMES 3.5-157-0A11A B10'S D7 F4 N8 M3 W87E18 VSR5(HBS043)

SYMBOL MACH
○ 7.320

PARAMETRIC VALUES
ELVN-L .000 ELVN-R .000
SPCRK 54.920 RUDDER .000
AILRON .000 ELEVON .000
BOFLAP -14.750 BETA .000

REFERENCE INFORMATION
SREF 2690.0000 SQ.FT.
LREF 474.8000
BREF 936.8800
XVGRP 1103.2400
YVGRP 1000.0000
ZVGRP 400.0000
SCALE 101.50

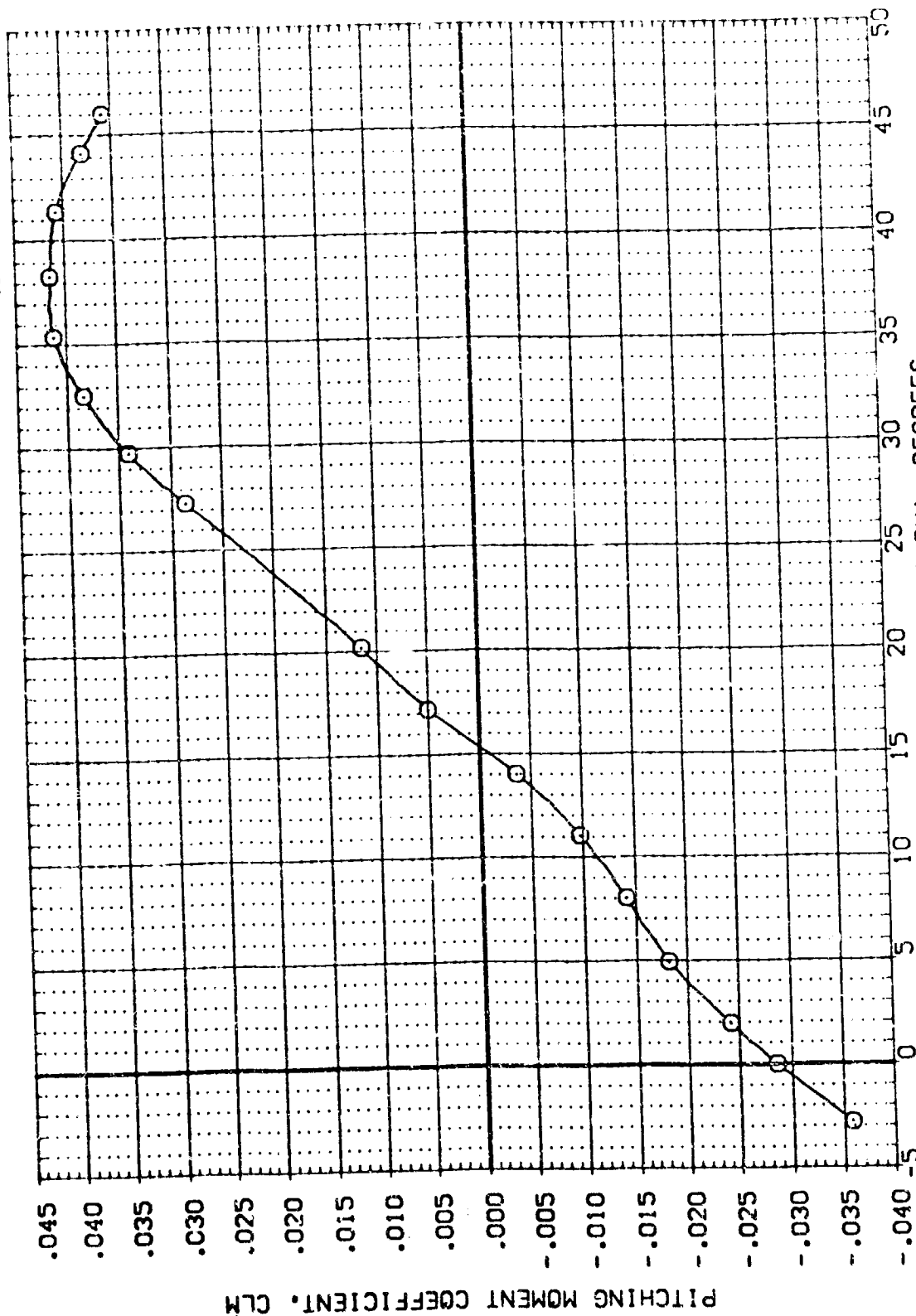


FIG. 5 TOTAL VEHICLE CHARACTERISTICS, M=7.32, BOFLAP=-14.75 DEG.- AFT. C.G.
PAGE 17

AMES 3.5-157-0A11A B10C5 07 F4 N8 M3 W87E18 VSR5(GBS043)

SYMBOL	MACH	PARAMETRIC VALUES	REFERENCE	UNITS
○	7.320	ELVN-L .000	SPRS	2690.0
		ELVN-R .000	LREF	474.8
		SPDRK S4.920	BRFF	936.850
		ALLRON .000	XREF	1075.4800
		BDFLAP -14.750	YREF	2000.0000
			ZREF	2000.0000
			SCALE	400.0000
			SCALE	10.0000

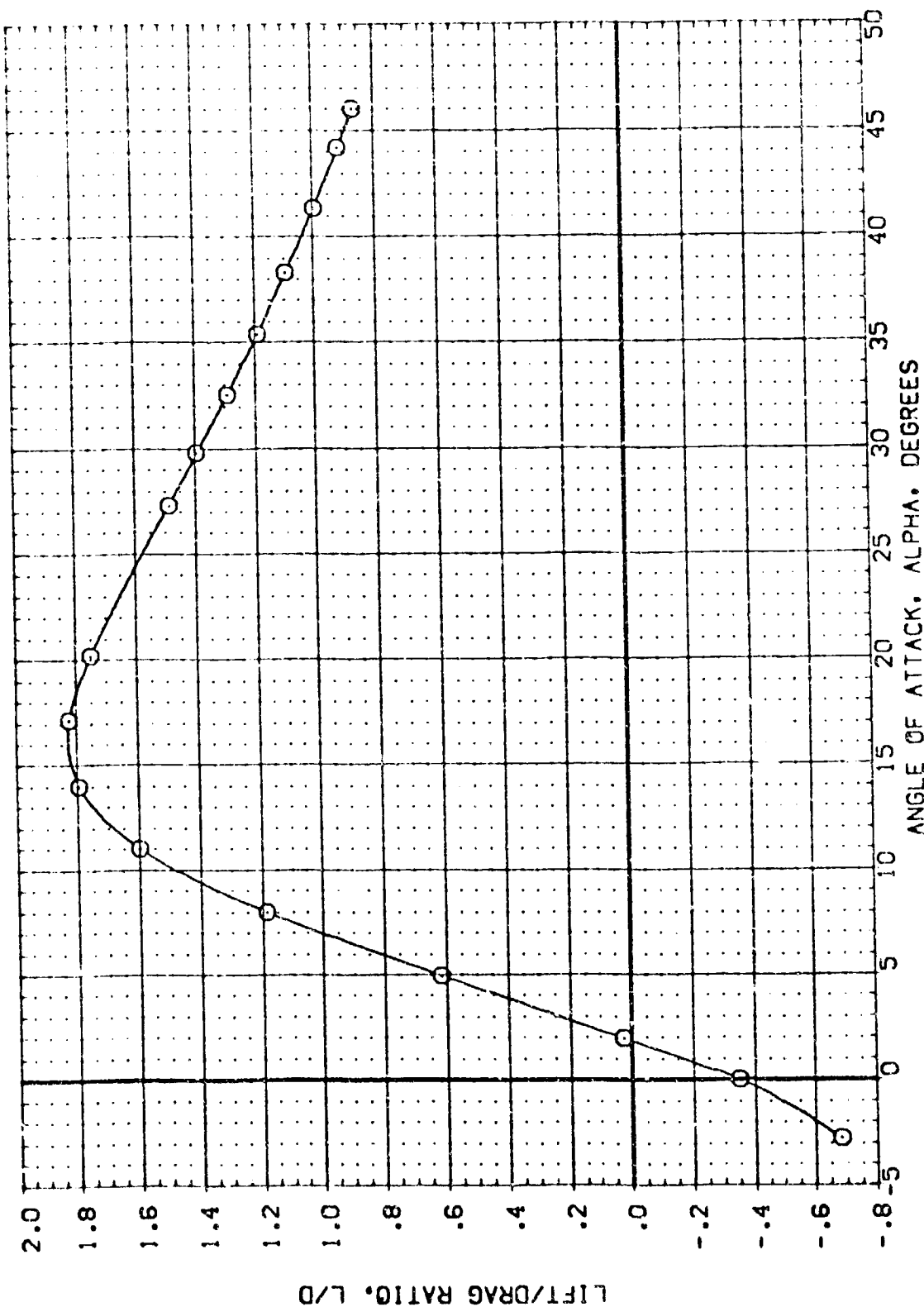


FIG. 5 TOTAL VEHICLE CHARACTERISTICS, M=7.32, BDFLAP=-14.75 DEG.- FWD. C.G.

SREF	2690	2000	50.FT.
LREF	474	8000	"
BREF	936	6000	"
XPR0	1076	4600	"
ZPR0	1000		"
YPR0	400	6000	"
SCALE	100	10.50	SCALE

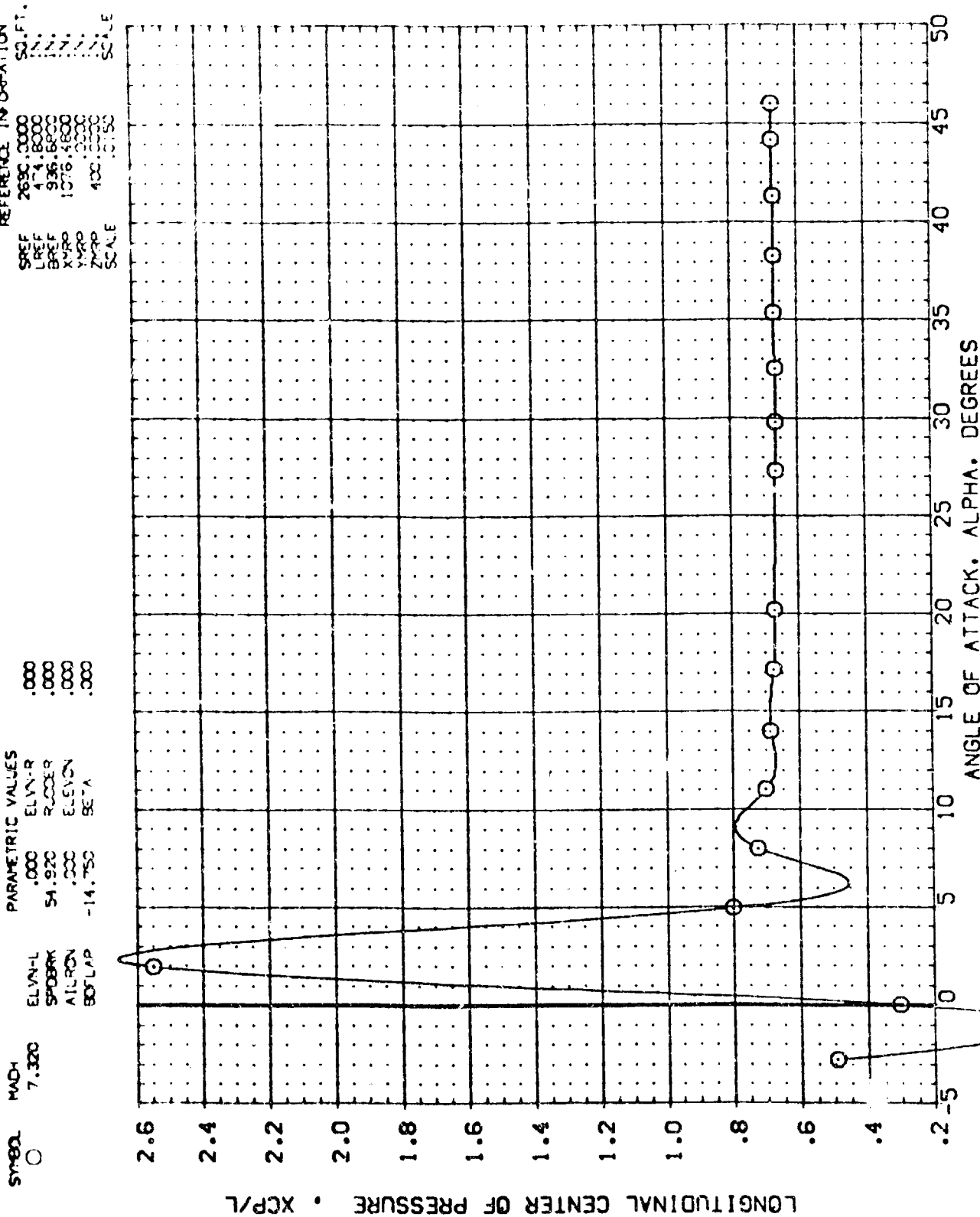


FIG. 5 TOTAL VEHICLE CHARACTERISTICS, $M=7.32$, $\delta DFLAP=-14.75$ DEG. - FWD. C.G.

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5 (GBS043)

SYMBOL	MACH	PARAMETRIC VALUES	REFERENCE INFORMATION
○	7.320	ELWHL .000 ELVHLR .000	SPREF 2680.0000
		SPDRK 54.920 RADDER .000	LRPF 414.0000
		ALLRON .000 ELEVON .000	BRPF 936.1800
		BOFLAP -14.750 BEVA .000	VMPO 1076.1000
			ZMPO 400.0000
			SCALE 10.000

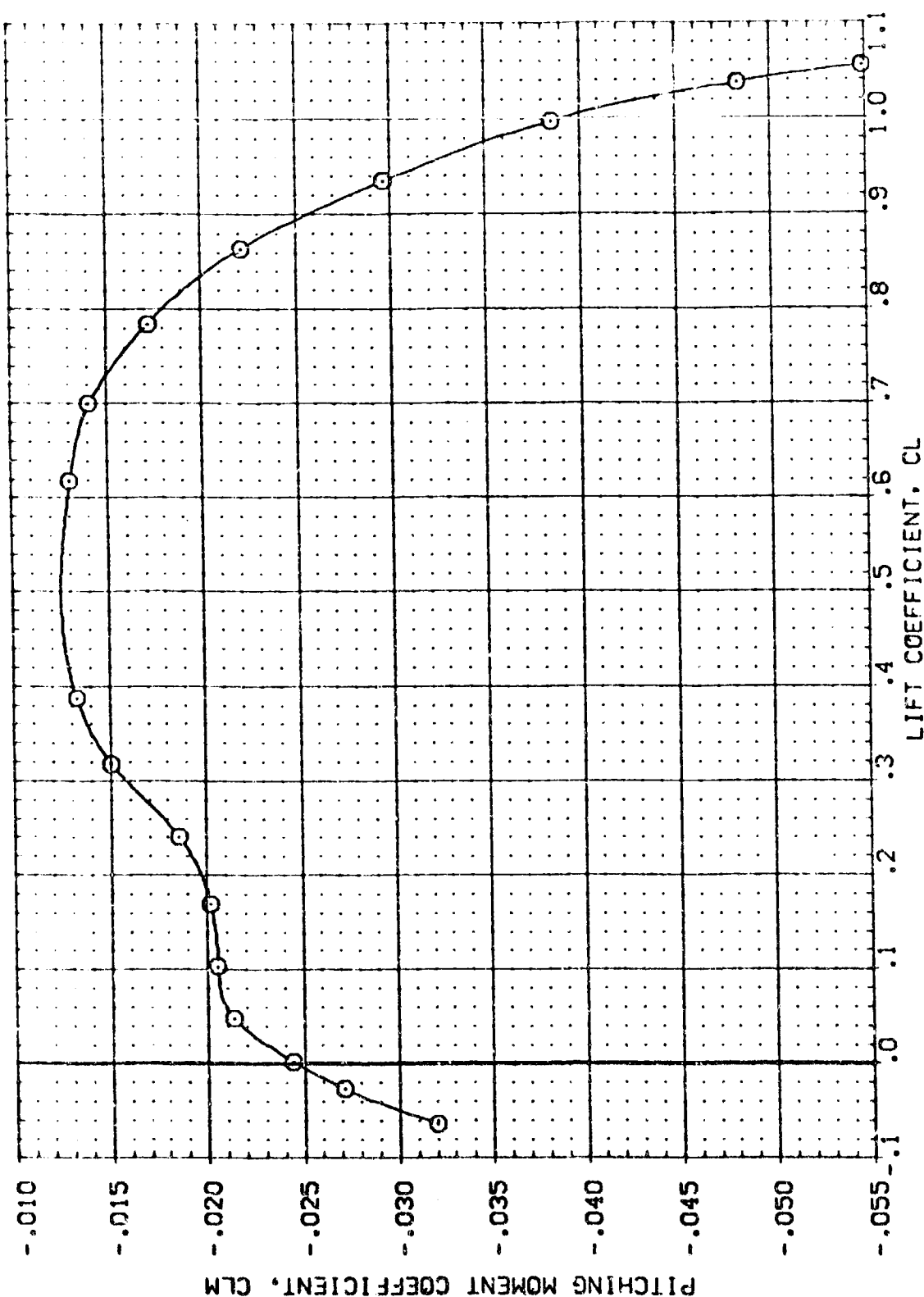


FIG. 5 TOTAL VEHICLE CHARACTERISTICS, M=7.32, BOFLAP=-14.75 DEG. - FWD. C.G.

III

AMES 3.5-157-0A11A B10C5 07 F4 N8 M3 W87E18 VSR5(GBS043)

SYMBOL	MACH	PARAMETRIC VALUES	REFERENCE INFORMATION
○	7.320	ELVN-L .000 ELVN-R .000	SREF 2690.0000 SQ.FT.
		SPDRK 54.920 RUDDER .000	LREF 474.8000
		AIRCN .000 ELEVEN .000	BREF 936.6900
		BOFLAP -14.750 BETA .000	XREF 1076.5800
			YREF 400.0000
			ZREF 400.0000
			SCALE 0.150

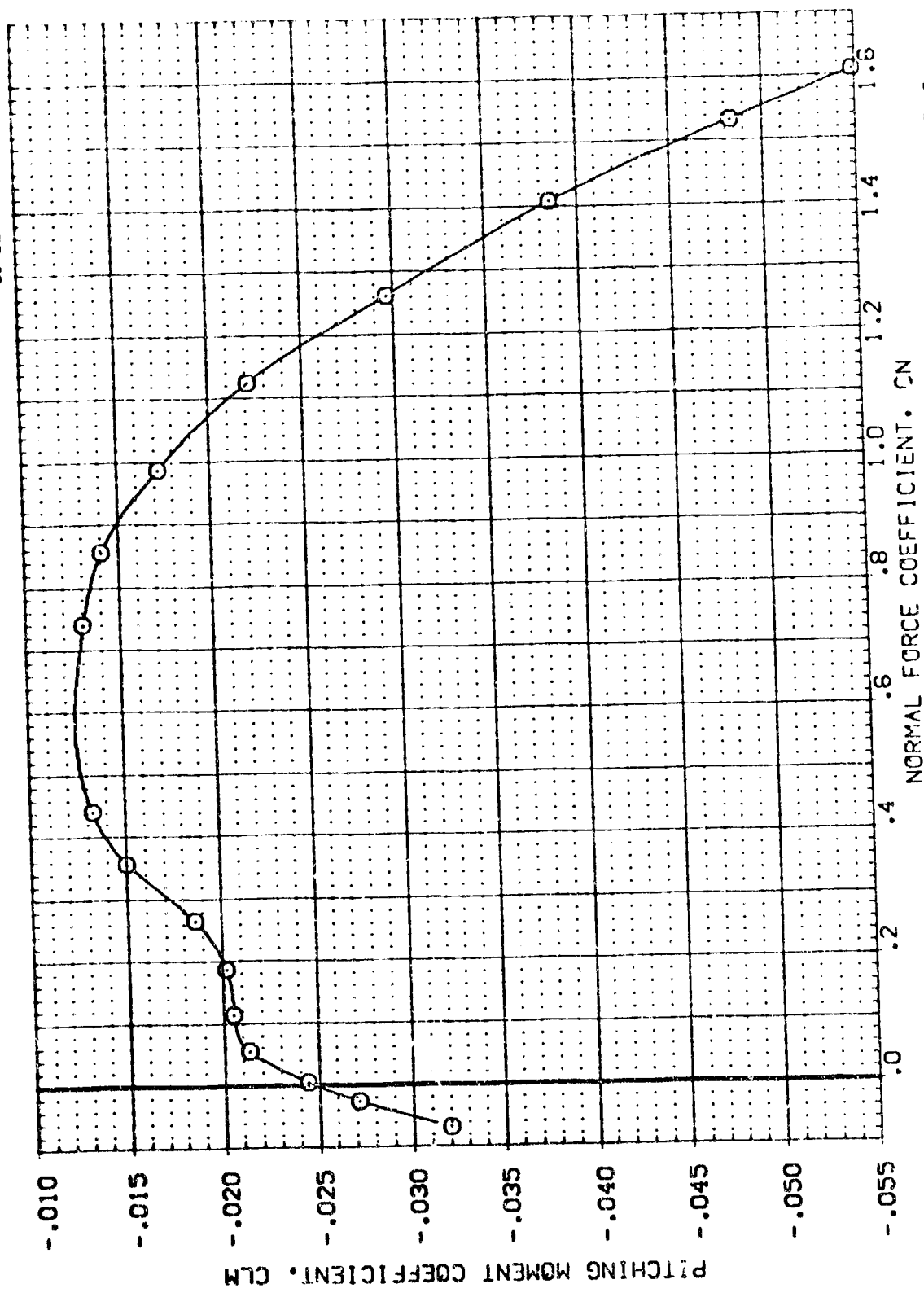


FIG. 5 TOTAL VEHICLE CHARACTERISTICS, M=7.32, BOFLAP=-14.75 DEG.- FWD. C.G. PAGE 2:

AMES 3.5-157-0A11A B10C5 07 F4 N8 M3 W87E18 VSR5 (GBS043)

SYMBOL
○

MACH
7.370

ELVN-L
SPDRK
ALLRON

PARAMETRIC VALUES
ELVN-R
RLODER
ELEVON
BETA

.000
.000
.000
.000

REFERENCE INFORMATION
SREF 2690.0000
LREF 474.8000
BREF 933.6000
XREF 1276.4000
YREF 1276.4000
ZREF 400.0000
SCALE 1:100

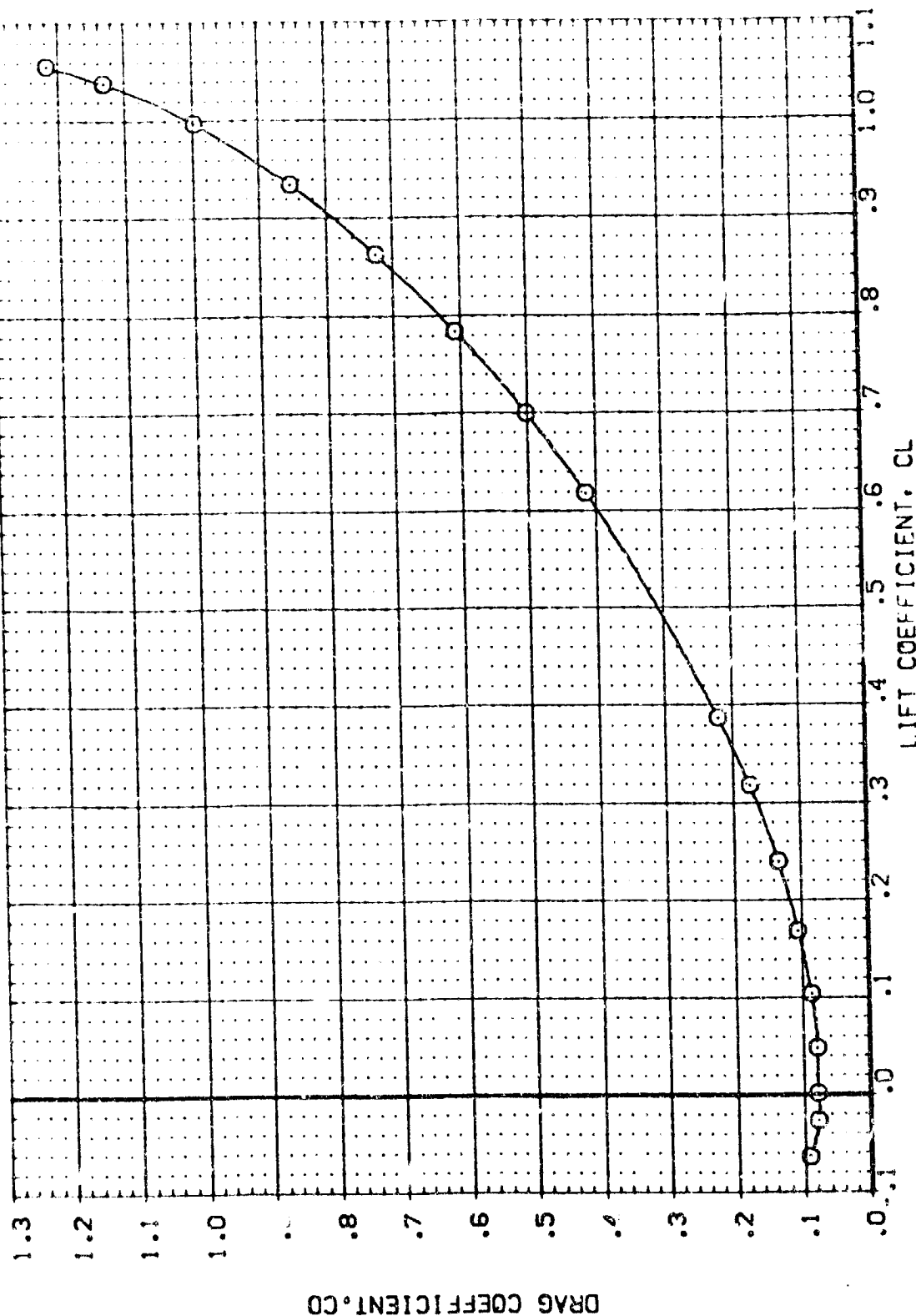


FIG. 5 TOTAL VEHICLE CHARACTERISTICS, M=7.32, BDFLAP=-14.75 DEG.- FWD. C.G.

III

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	SPDRK	BDFLAP	REFERENCE INFORMATION
(R85056)	AVES 3-3-157-CA11A B:005 D7 F4 N8 M3 V87E18 VS95	.000	.000	54.920	-14.750	SREF 2690.0000
(R85057)	AVES 3-3-157-CA11A B:005 D7 F4 N8 M3 V87E18 VS95	.000	.000	54.920	-14.750	LREF 474.8000
(R85058)	AVES 3-3-157-CA11A B:005 D7 F4 N8 M3 V87E18 VS95	.000	.000	54.920	-14.750	DREF 636.1800
(R85059)	AVES 3-3-157-CA11A B:005 D7 F4 N8 M3 V87E18 VS95	.000	.000	54.920	-14.750	XREF 1076.8000
(R85060)	AVES 3-3-157-CA11A B:005 D7 F4 N8 M3 V87E18 VS95	.000	.000	54.920	-14.750	YREF 1076.8000
(R85061)	AVES 3-3-157-CA11A B:005 D7 F4 N8 M3 V87E18 VS95	.000	.000	54.920	-14.750	ZREF 1076.8000
(R85062)	AVES 3-3-157-CA11A B:005 D7 F4 N8 M3 V87E18 VS95	.000	.000	54.920	-14.750	SCALE 100.0000
(R85063)	AVES 3-3-157-CA11A B:005 D7 F4 N8 M3 V87E18 VS95	.000	.000	54.920	-14.750	SCALE 100.0000

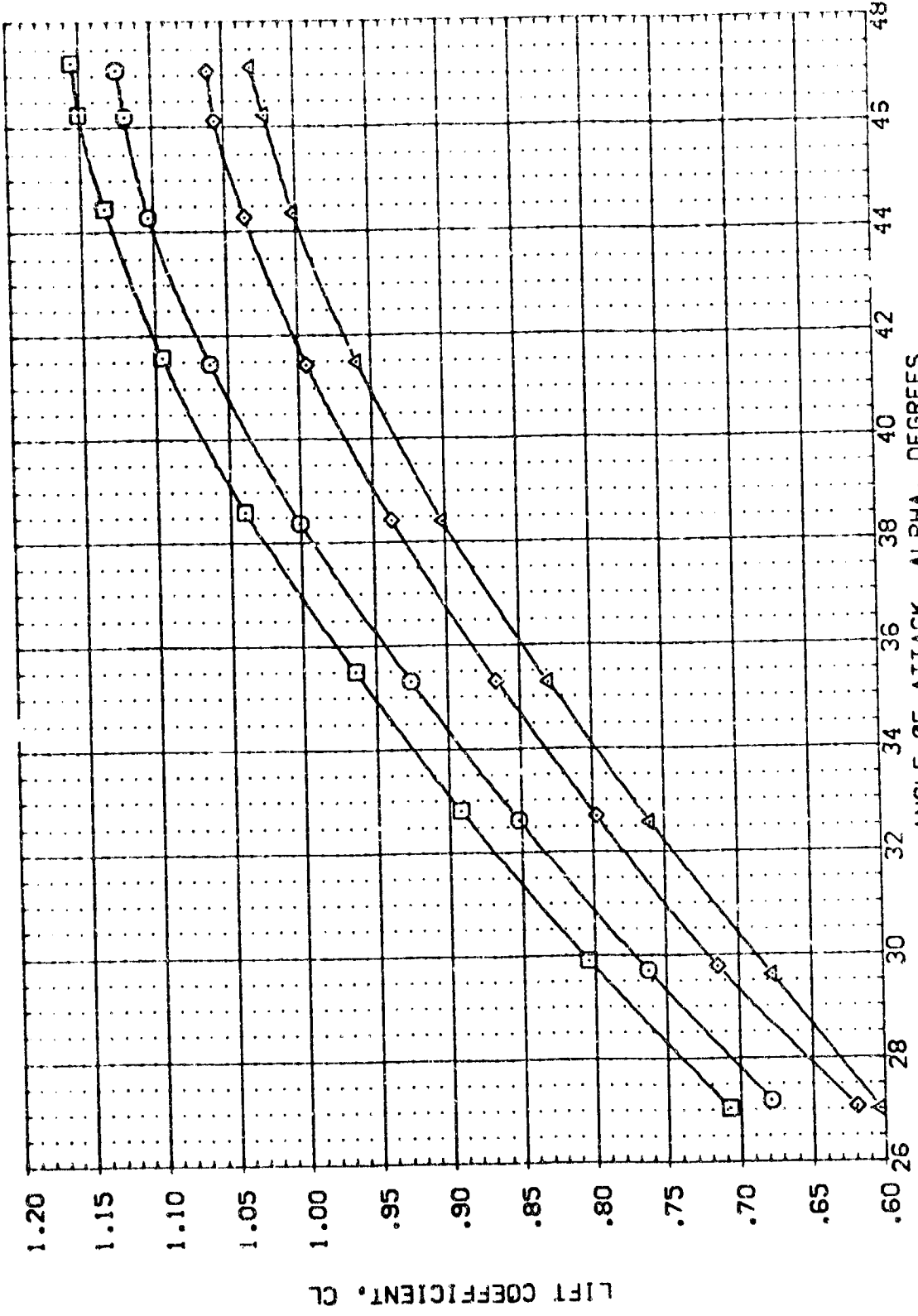


FIG. 5 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=5.27, BDFLAP=-14.75 DEG.-FWD C.G.
 (A) MACH = 5.27
 PAGE 23

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPDBRK	BOFLAP	REFERENCE INFORMATION
[R95056]	AVES 3.5-157-CA11A B100S D7 F4 N8 M3 V87E18 VSR5	.000	.000	54.920	-14.750	SREF 2690.0000 SCL.FT.
[R95053]	AVES 3.5-157-CA11A B100S D7 F4 N8 M3 V87E18 VSR5	.000	.000	54.920	-14.750	REF 474.8000
[R95055]	AVES 3.5-157-CA11A B100S D7 F4 N8 M3 V87E18 VSR5	-20.000	.000	54.920	-14.750	BRF 936.6800
[R95054]	AVES 3.5-157-CA11A B100S D7 F4 N8 M3 V87E18 VSR5	-40.000	.000	54.920	-14.750	XMRP 1076.4800
						ZMRP .0000
						SCALE 400.0000
						SCALE .0100

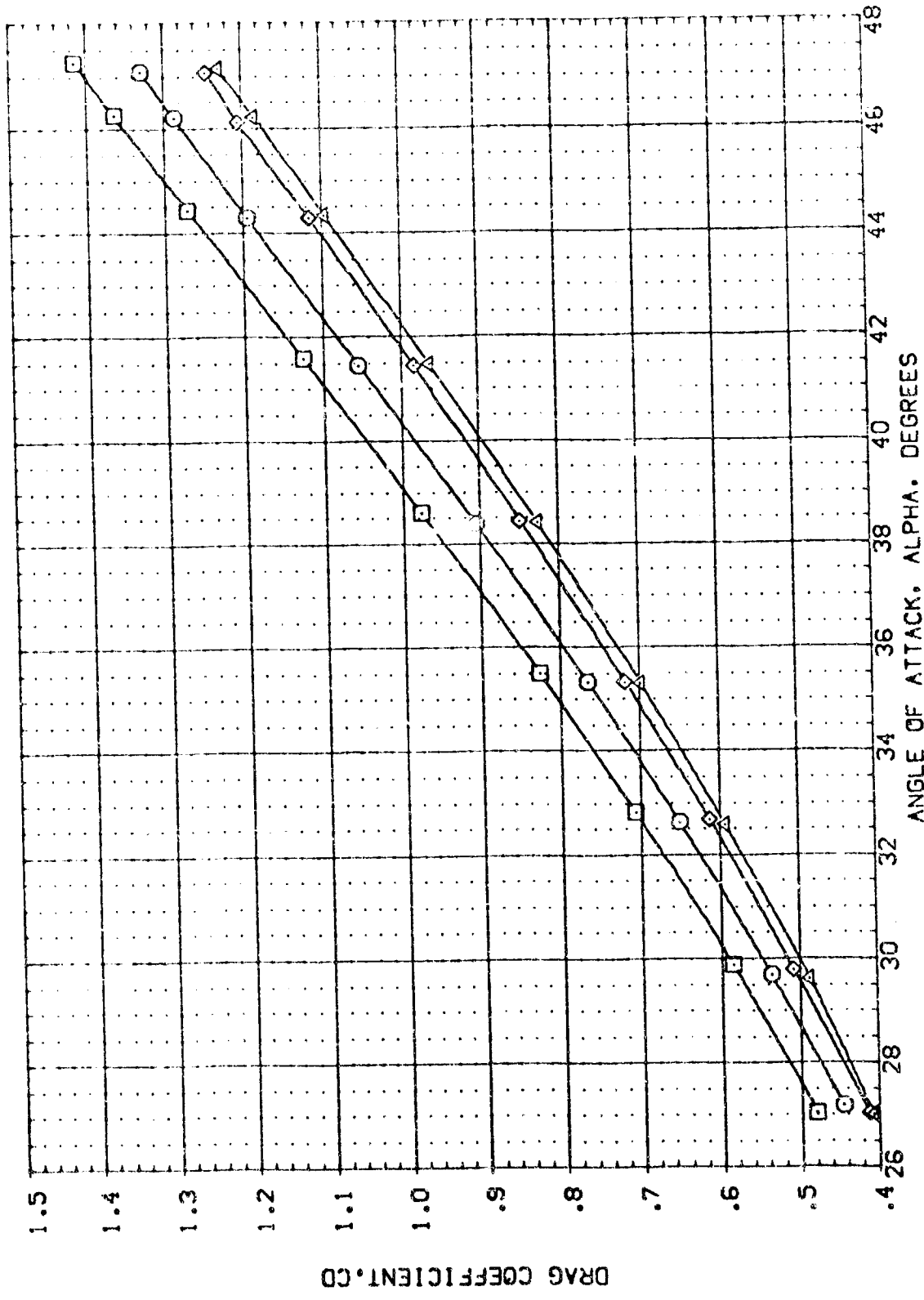


FIG. 6 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=5.27, BOFLAP=-14.75 DEG, -FWD C.G.
 (A)MACH = 5.27

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPOBRK	BDFLAP	REFERENCE INFORMATION
095055	AMES 3.5-57-CA11A B1005 D7	0.00	0.00	54.920	-14.750	SREF 2690.0000
095056	AMES 3.5-57-CA11A B1005 D7	0.00	0.00	54.920	-14.750	LPREF 474.0000
095057	AMES 3.5-57-CA11A B1005 D7	10.000	0.00	54.920	-14.750	BPREF 932.0000
095058	AMES 3.5-57-CA11A B1005 D7	-20.000	0.00	54.920	-14.750	XPREF 10.0000
095059	AMES 3.5-57-CA11A B1005 D7	-40.000	0.00	54.920	-14.750	YREF 100.0000
095060	AMES 3.5-57-CA11A B1005 D7					ZREF 100.0000
						SCALE 400.0000
						SCALE 10.0000

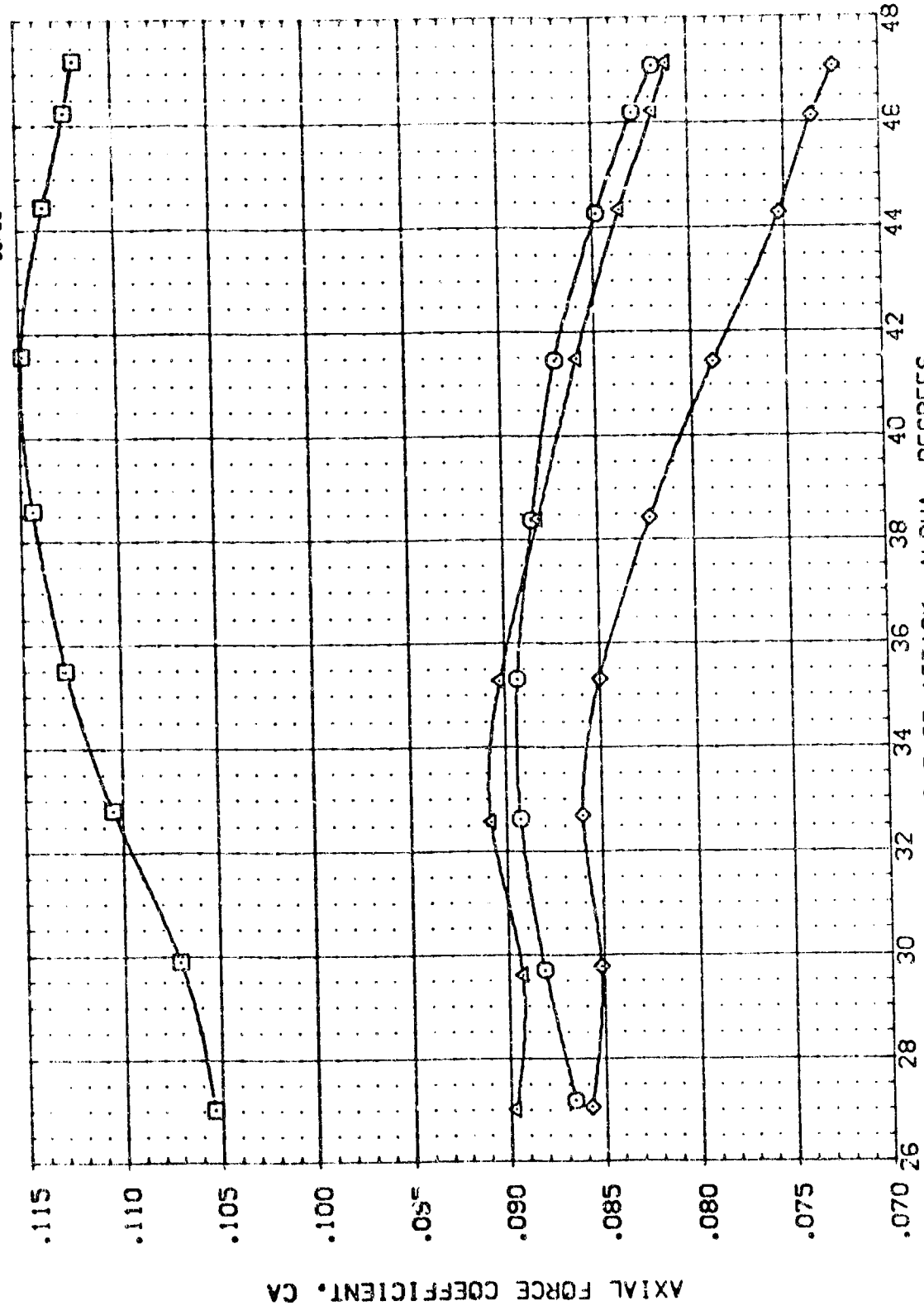


FIG. 6 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=5.27, BDFLAP=-14.75 DEG, -FWD C.G.
 (A) MACH = 5.27
 PAGE 25

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPDBRK	BDFLAP	REFERENCE INFORMATION
RB5056	AVES 3.5-157-CA11A B1005 07 F4 18 M3 V87E18 VS15	.000	.000	54.920	-14.750	2690.000
RB5053	AVES 3.5-157-CA11A B1005 07 F4 18 M3 V87E18 VS05	.000	.000	54.920	-14.750	474.800
RB5055	AVES 3.5-157-CA11A B1005 07 F4 18 M3 V87E18 VS05	-20.000	.000	54.920	-14.750	939.800
RB5054	AVES 3.5-157-CA11A B1005 07 F4 18 M3 V87E18 VS05	-40.000	.000	54.920	-14.750	1015.400
						7000.000
						400.000
						SCALE

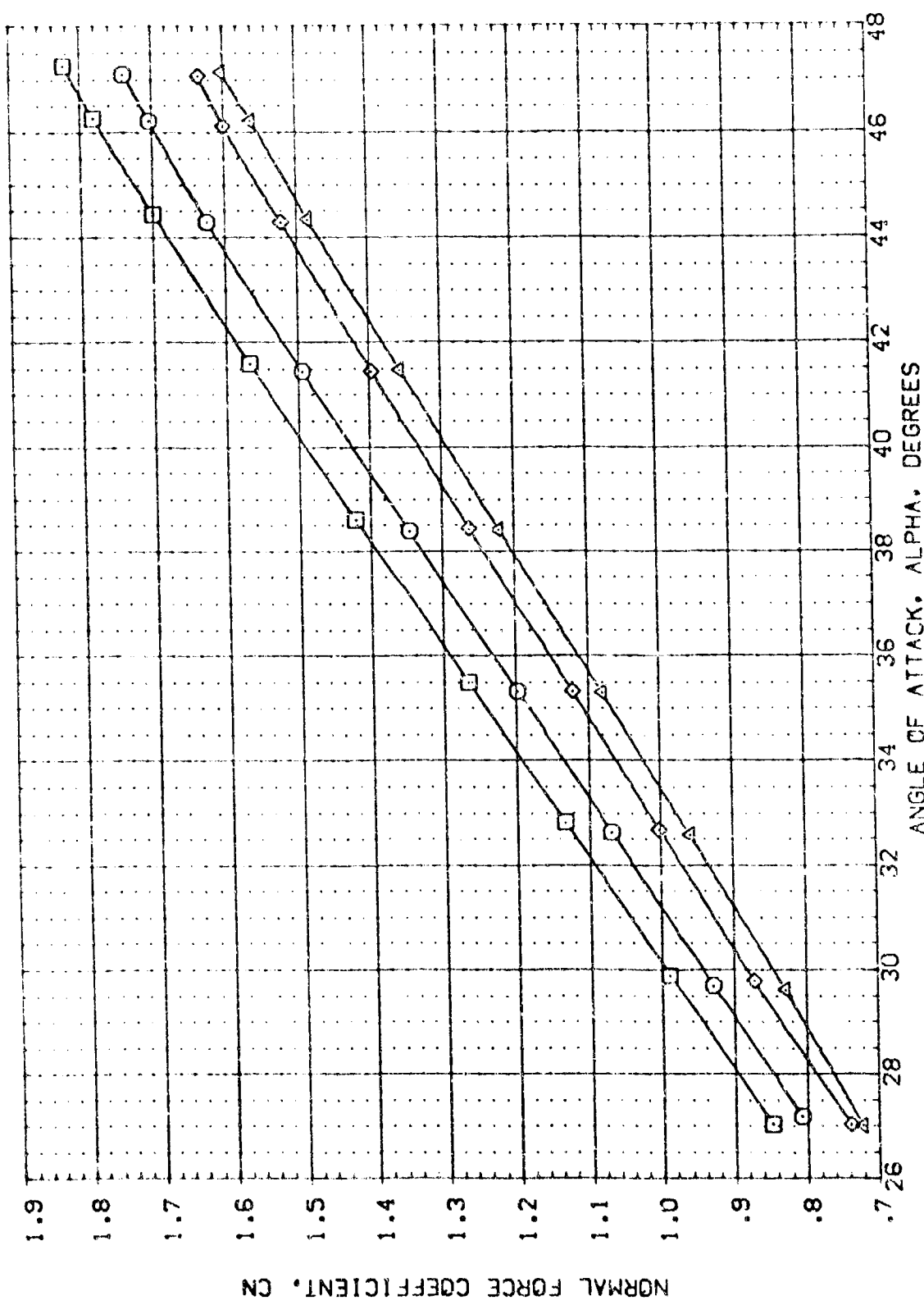


FIG. 6 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=5.27, BDFLAP=-14.75 DEG.-FWD C.G.
 (A) MACH = 5.27

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELEVON AILRON SPOBRK BDFLAP REFERENCE INFORMATION

(R95256)	AVES 3.5-157-CA	1A	81005	07	F4	N8	13	V87E18	V5R5	000	000	54.920	-14.750	SREF	2690.0000
(R95253)	AVES 3.5-157-CA	1A	81005	07	F4	N8	13	V87E18	V5R5	10.000	000	54.920	-14.750	LREF	474.8000
(R95255)	AVES 3.5-157-CA	1A	81005	07	F4	N8	13	V87E18	V5R5	-20.000	000	54.920	-14.750	BREF	936.6000
(R95254)	AVES 3.5-157-CA	1A	81005	07	F4	N8	13	V87E18	V5R5	-40.000	000	54.920	-14.750	XREF	1015.4000
														YREF	400.0000
														ZREF	1015.0000
														SCALE	1.0150

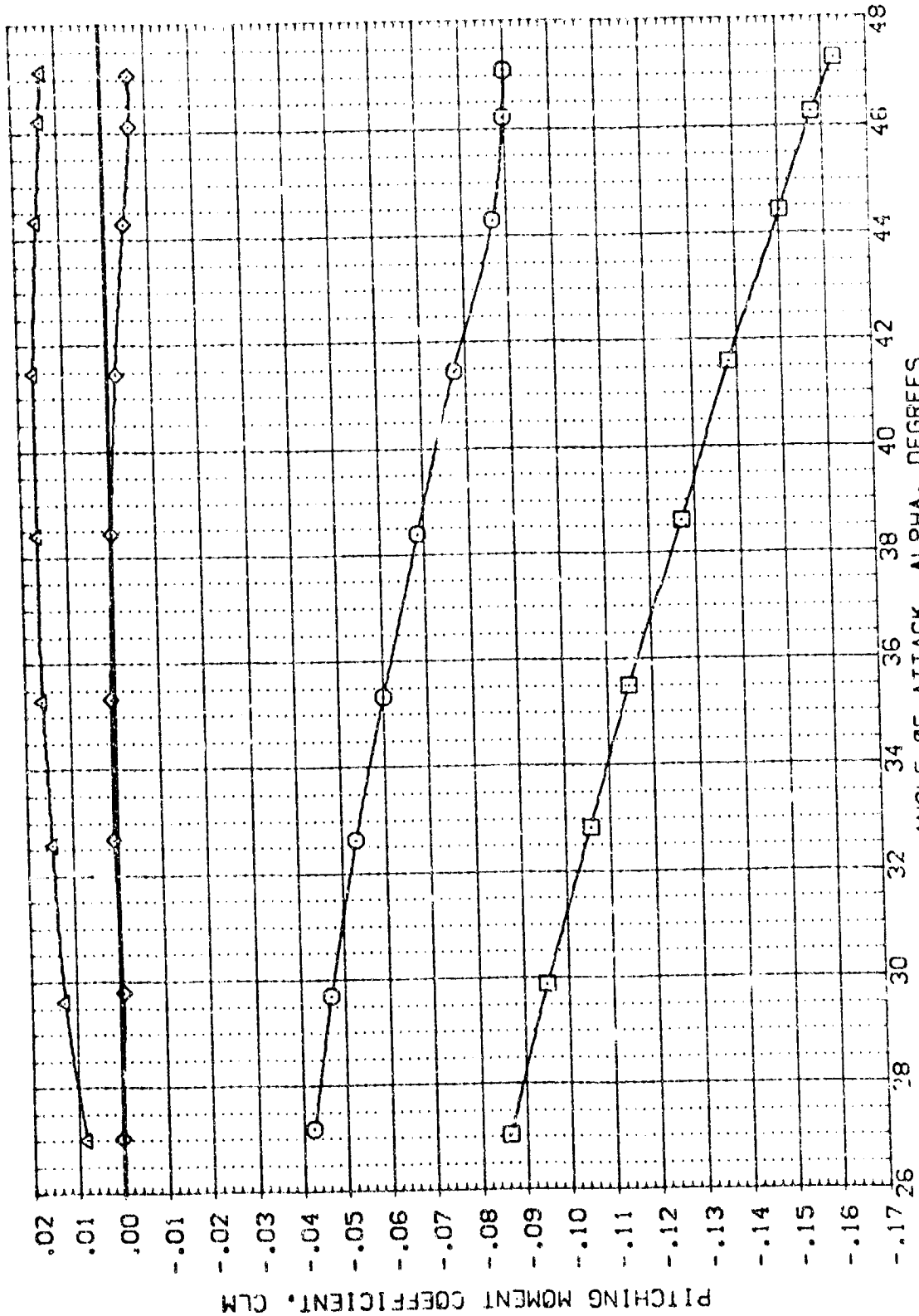


FIG. 6 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=5.27, BDFLAP=-14.75 DEG.-FWD C.G.

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPDBRK	BD FLAP	REFERENCE INFORMATION
885056	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885057	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885058	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885059	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885060	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885061	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885062	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885063	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885064	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885065	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885066	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885067	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885068	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885069	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885070	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885071	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885072	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885073	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885074	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885075	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885076	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885077	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885078	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885079	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885080	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885081	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885082	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885083	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885084	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885085	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885086	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885087	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885088	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885089	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885090	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885091	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885092	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885093	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885094	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885095	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885096	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885097	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885098	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885099	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000
885100	AVS 3.5-57-24.1A B1005	0.000	0.000	54.920	-14.750	2890.0000

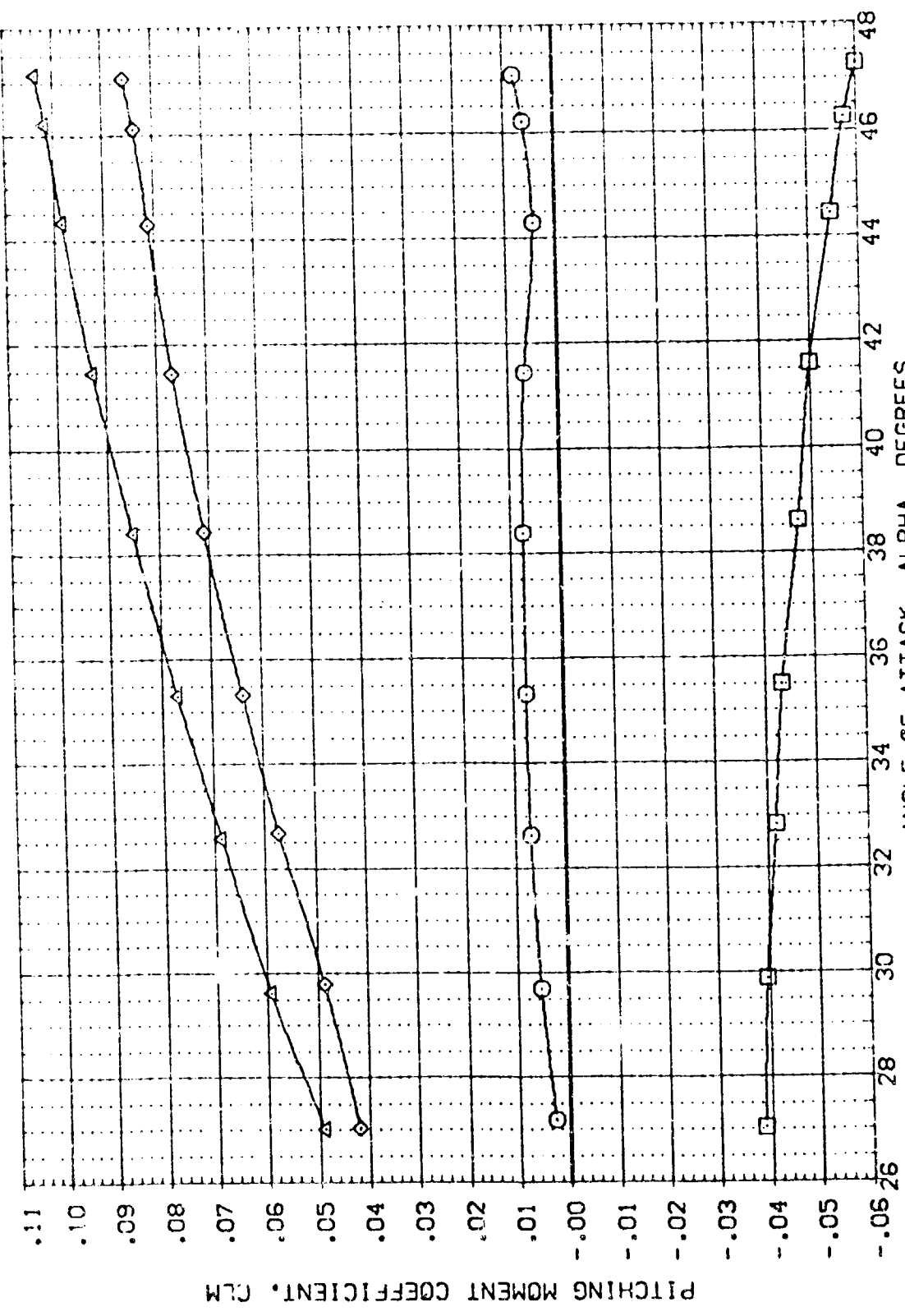


FIG. 6 TOTAL VEHICLE WITH DEFLECTED ELEVLONS, M=5.27, BD FLAP=-14.75 DEG. -AFT C.G.
 (A) MACH = 5.27



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPOILER	BDFLAP	REFERENCE INFORMATION
(R85056)	AVES 3.5-157-0A11A B1005 D7 F4 N8 M3 V87E18 V89S	.000	.000	54.920	-14.750	SREF 2630.0000 SQ.FT.
(R85057)	AVES 3.5-157-0A11A B1005 D7 F4 N8 M3 V87E18 V89S	.000	.000	54.920	-14.750	LREF 474.8000 IN.
(R85058)	AVES 3.5-157-0A11A B1005 D7 F4 N8 M3 V87E18 V89S	.000	.000	54.920	-14.750	BREF 936.8800 IN.
(R85059)	AVES 3.5-157-0A11A B1005 D7 F4 N8 M3 V87E18 V89S	.000	.000	54.920	-14.750	XREF 1076.4800 IN.
(R85060)	AVES 3.5-157-0A11A B1005 D7 F4 N8 M3 V87E18 V89S	.000	.000	54.920	-14.750	YREF 100.0000 IN.
						ZREF 100.0000 IN.
						SCALE .0150

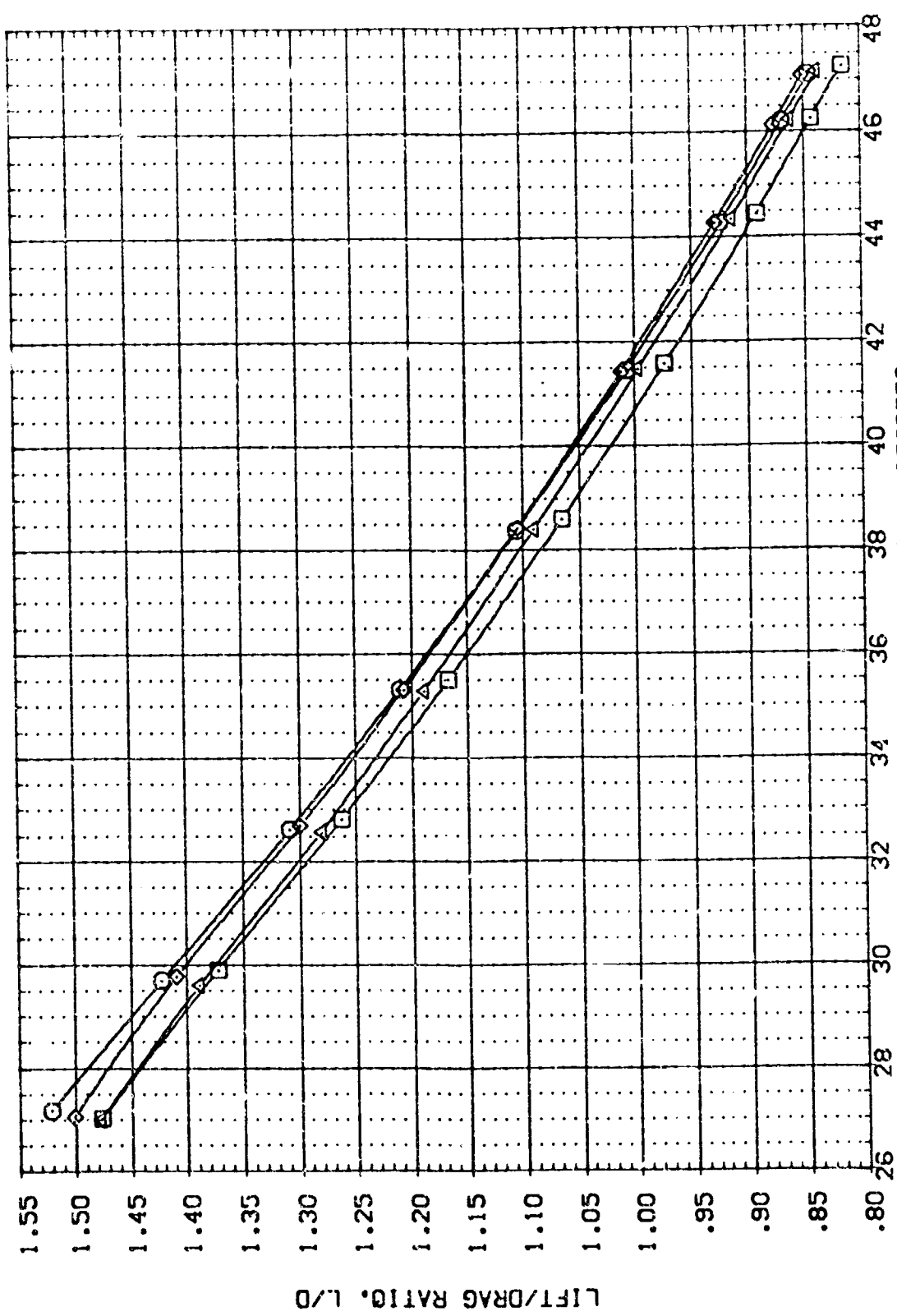


FIG. 6 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=5.27, BDFLAP=-14.75 DEG.-FWD C.G.

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPOILER	BOFLAP	REFERENCE INFORMATION
(R85056)	AVES 3.5-157-0A11A B10CS D7 F4 N8 M3 V87E18 VSR5	.000	.000	54.920	-14.750	SREF 2690.0000
(R85053)	AVES 3.5-157-0A11A B10CS D7 F4 N8 M3 V87E18 VSR5	.000	.000	54.920	-14.750	LREF 474.8000
(R85055)	AVES 3.5-157-0A11A B10CS D7 F4 N8 M3 V87E18 VSR5	.000	.000	54.920	-14.750	BREF 936.6800
(R85054)	AVES 3.5-157-0A11A B10CS D7 F4 N8 M3 V87E18 VSR5	.000	.000	54.920	-14.750	XMRP 1076.4800
						YMRP .0000
						ZMRP .0000
						SCALE .0150

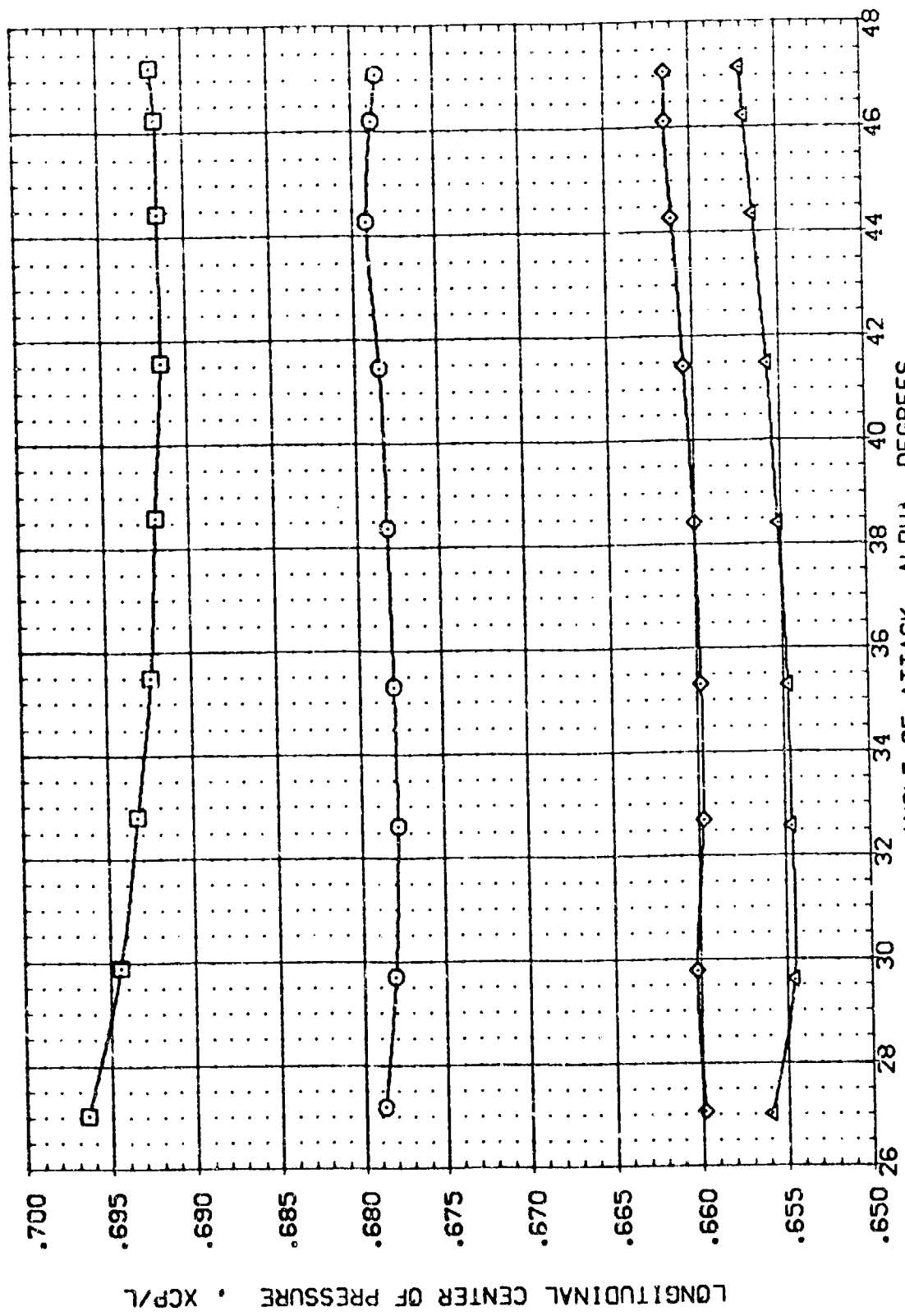


FIG. 6 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=5.27, BOFLAP=-14.75 DEG.-FWD C.G.
 (A) MACH = 5.27

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPDBRK	BDFLAP	REFERENCE INFORMATION
(RBS026)	AVES 3.5-157-DA11A B10C5 D7	.000	.000	54.920	-14.750	SREF 2690.0000
(RBS023)	AVES 3.5-157-DA11A B10C5 D7	.000	.000	54.920	-14.750	LREF 414.8000
(RBS025)	AVES 3.5-157-CA11A B10C5 D7	.000	.000	54.920	-14.750	BREF 925.8000
(RBS024)	AVES 3.5-157-CA11A B10C5 D7	.000	.000	54.920	-14.750	XREF 1016.4000
						YREF 0.0000
						ZREF 0.0000
						SCALE 400.0000
						SCALE 0.150

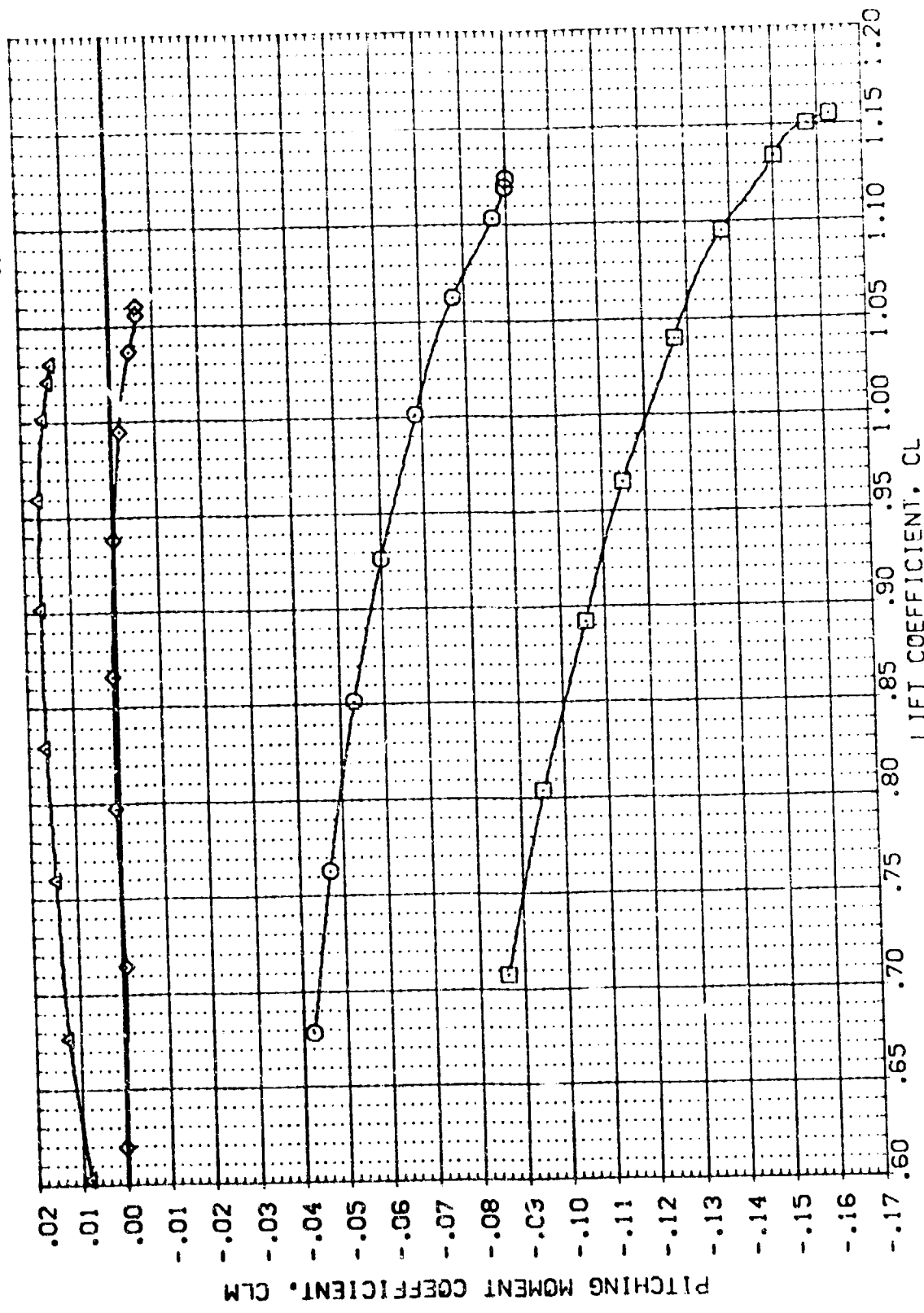


FIG. 6 TOTAL VEHICLE WITH DEFLECTED ELEVONS, $M=5.27$, $\delta DFLAP=-14.75$ DEG, -FWD C.G.
 (A) MACH = 5.27

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPORER	BD FLAP	REFERENCE INFORMATION	SCALE
(R95056)	AVES 3.5-57-CA11A B100S 37 F4 N3 V87E18 VSPS	.000	.000	54.920	-14.750	2680 0300	50.0
(R95053)	AVES 3.5-57-CA11A B100S 37 F4 N3 V87E18 VSPS	10.000	.000	54.920	-14.750	400 0300	50.0
(R95055)	AVES 3.5-57-CA11A B100S 37 F4 N3 V87E18 VSPS	-20.000	.000	54.920	-14.750	400 0300	50.0
(R95054)	AVES 3.5-57-CA11A B100S 37 F4 N3 V87E18 VSPS	-40.000	.000	54.920	-14.750	400 0300	50.0

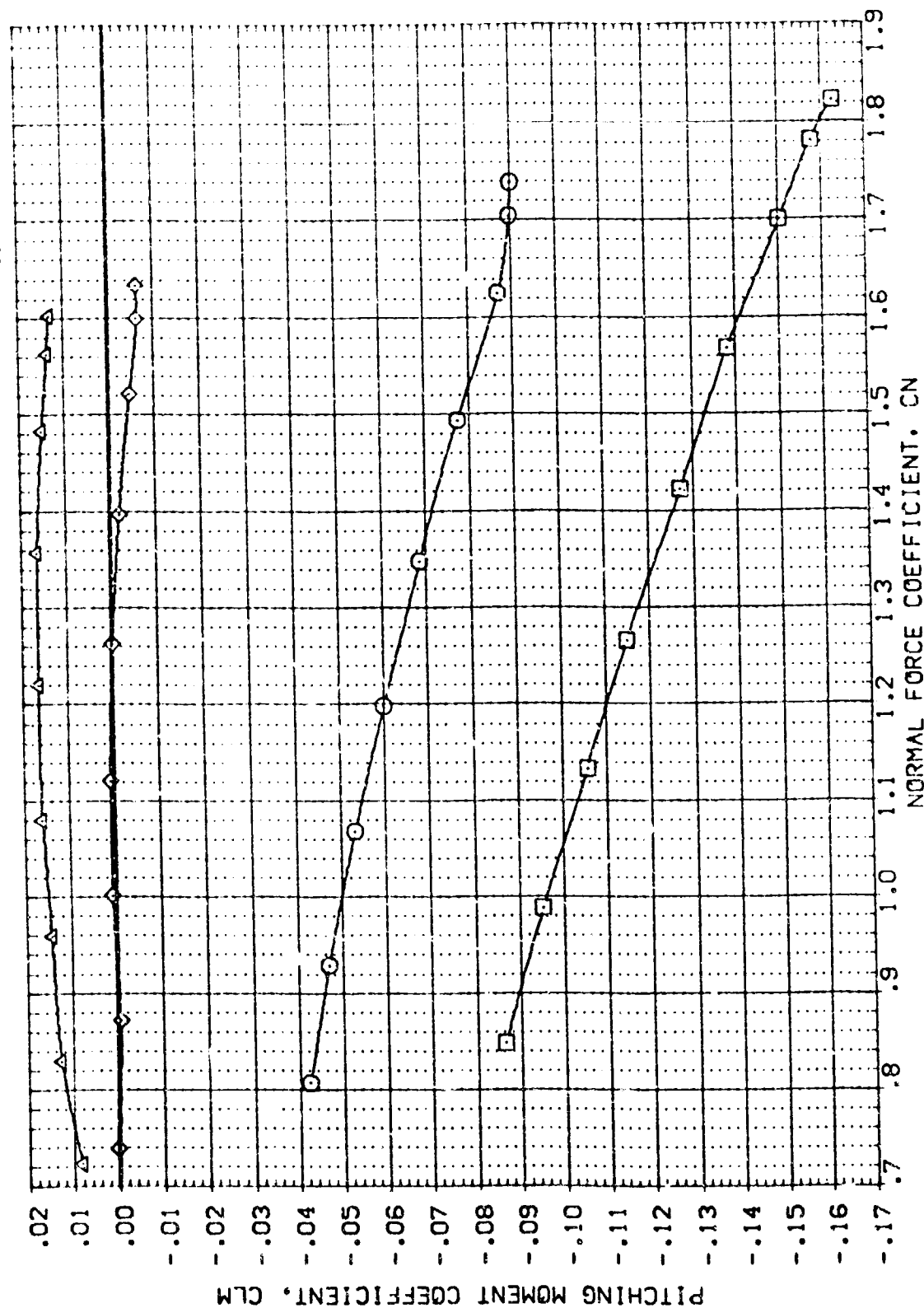


FIG. 6 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=5.27, BD FLAP=-14.75 DEG, -FWD C.G.

(1) MACH = 5.27

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPDBRK	BDFLAP	REFERENCE INFORMATION
(RSCS6)	AVES 3.5-157-CA11A B10CS D7 F4 N8	000	000	54.920	-14.750	SREF 2690.0000
(RSCS3)	AVES 3.5-157-CA11A B10CS D7 F4 N8	10.000	000	54.920	-14.750	LREF 474.8000
(RSCS3)	AVES 3.5-157-CA11A B10CS D7 F4 N8	20.000	000	54.920	-14.750	BREF 936.8800
(RSCS4)	AVES 3.5-157-CA11A B10CS D7 F4 N8	-40.000	000	54.920	-14.750	XREF 1076.4800
						YREF 000.0000
						ZREF 000.0000
						SCALE 100.0000
						SCALE 100.0000

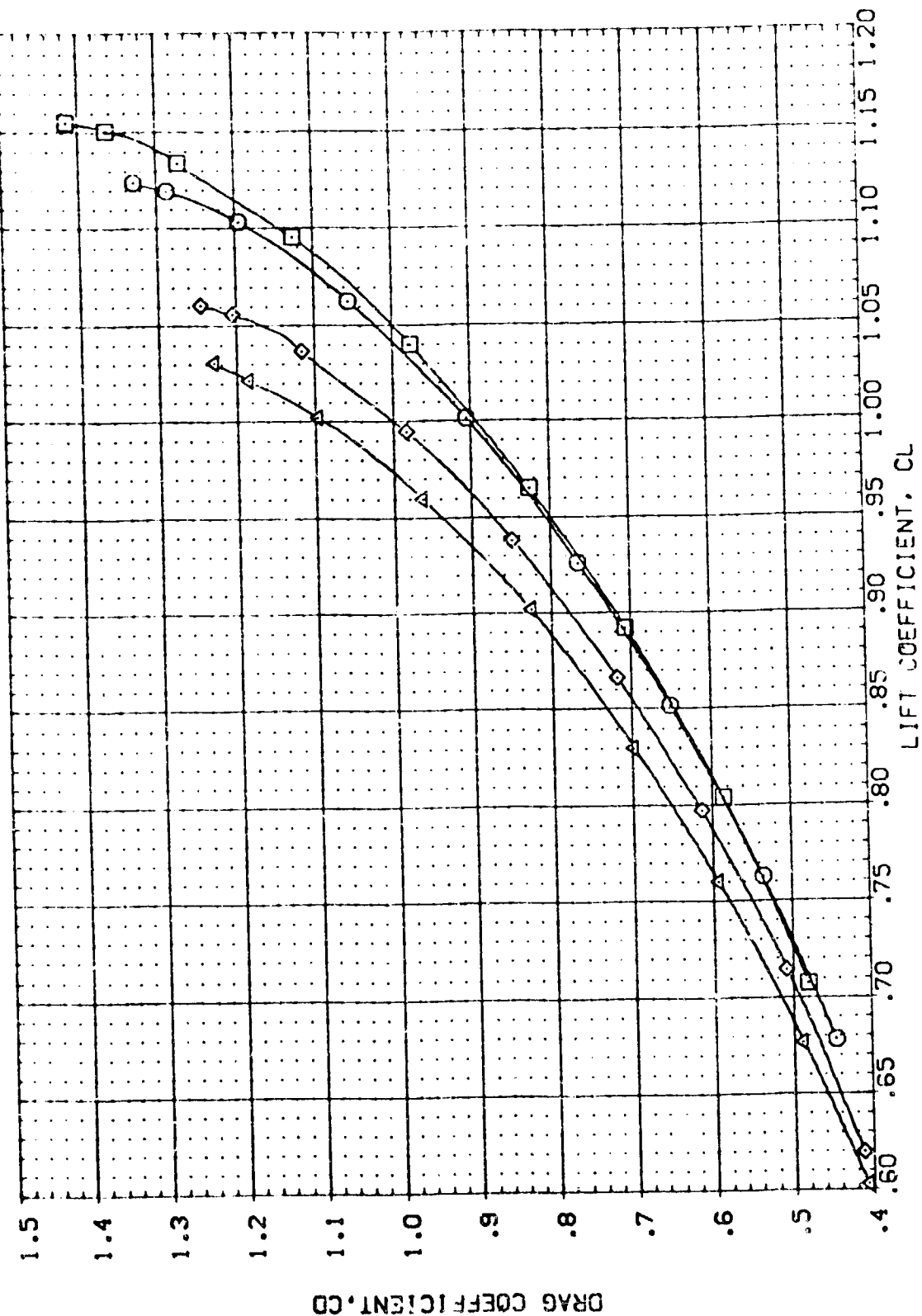


FIG. 6 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=5.27, BDFLAP=-14.75 DEG.-FWD C.G.

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPDRBK	BDFLAP	REFERENCE INFORMATION
(G85043)	AVES 3.5-157-CA11A B10CS D7 F4 N8 P3 V87E18 VSRS	.000	.000	54.920	-14.750	2690.0000 SQ.F.
(G85045)	AVES 3.5-157-CA11A B10CS D7 F4 N8 P3 V87E18 VSRS	-20.000	.000	54.920	-14.750	471.8000
(G85044)	AVES 3.5-157-CA11A B10CS D7 F4 N8 P3 V87E18 VSRS	-10.000	.000	54.920	-14.750	938.6800
						1076.4800
						1000.0000
						400.0000
						SCALE

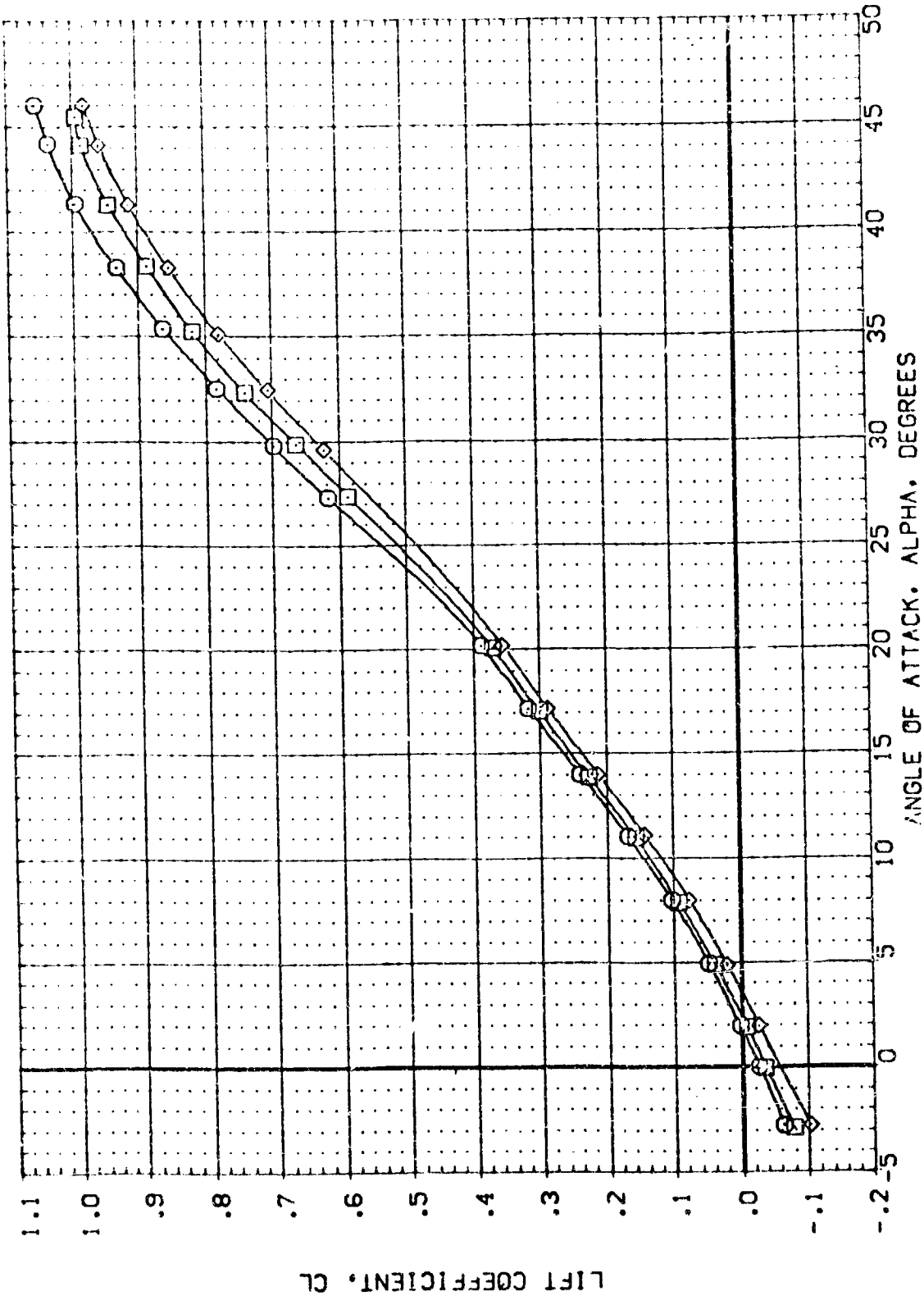


FIG. 7 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=7.32, BDFLAP=-14.75 DEG. -FWD C.G.
 (ADMACH = 7.32) PAGE 34

DATA SET SYMBOL: CONFIGURATION DESCRIPTION: AYES 3.5-157-DA11A B1DC5 D7 F4 M3 V87E18 VS85
 (GBS0413) AYES 3.5-157-DA11A B1DC5 D7 F4 M3 V87E18 VS85
 (GBS0415) AYES 3.5-157-DA11A B1DC5 D7 F4 M3 V87E18 VS85
 (GBS0414) AYES 3.5-157-DA11A B1DC5 D7 F4 M3 V87E18 VS85

ELEVON: .000
 AILRON: .000
 SPDBRK: S4.920
 BOFLAP: -14.750

REFERENCE INFORMATION: SREF 2650.0000 SQ.FT.
 LREF 474.8000
 BREF 936.6800
 XREF 1076.4900
 YREF 400.0000
 ZREF 400.0000
 SCALE 1:1.50

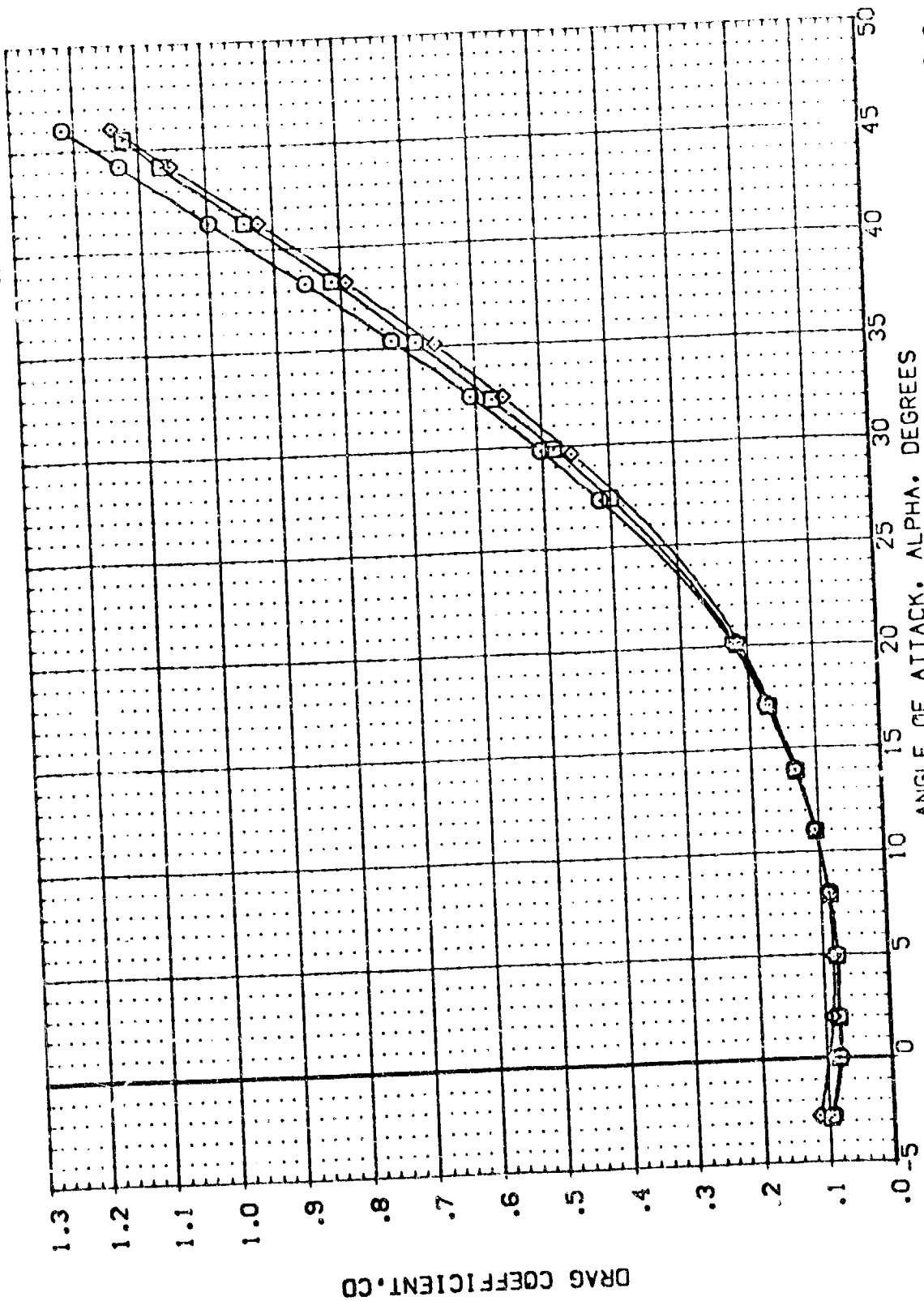


FIG. 7 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=7.32, BOFLAP=-14.75 DEG, -FWD C.G.

(A) MACH = 7.32

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPOILER	BOFLAP	REFERENCE INFORMATION
(085043)	AMES 3.5-157-CA11A B10CS D7 F4 N8 H3 V87E18 V5P5	.000	.000	54.920	-14.750	SREF 2690.0000
(085045)	AMES 3.5-157-CA11A B10CS D7 F4 N8 H3 V87E18 V5P5	.000	.000	54.920	-14.750	LREF 174.8000
(085044)	AMES 3.5-157-CA11A B10CS D7 F4 N8 H3 V87E18 V5P5	.000	.000	54.920	-14.750	BREF 938.6000
						YREF 174.8000
						ZREF 400.0000
						SCALE 400.0000

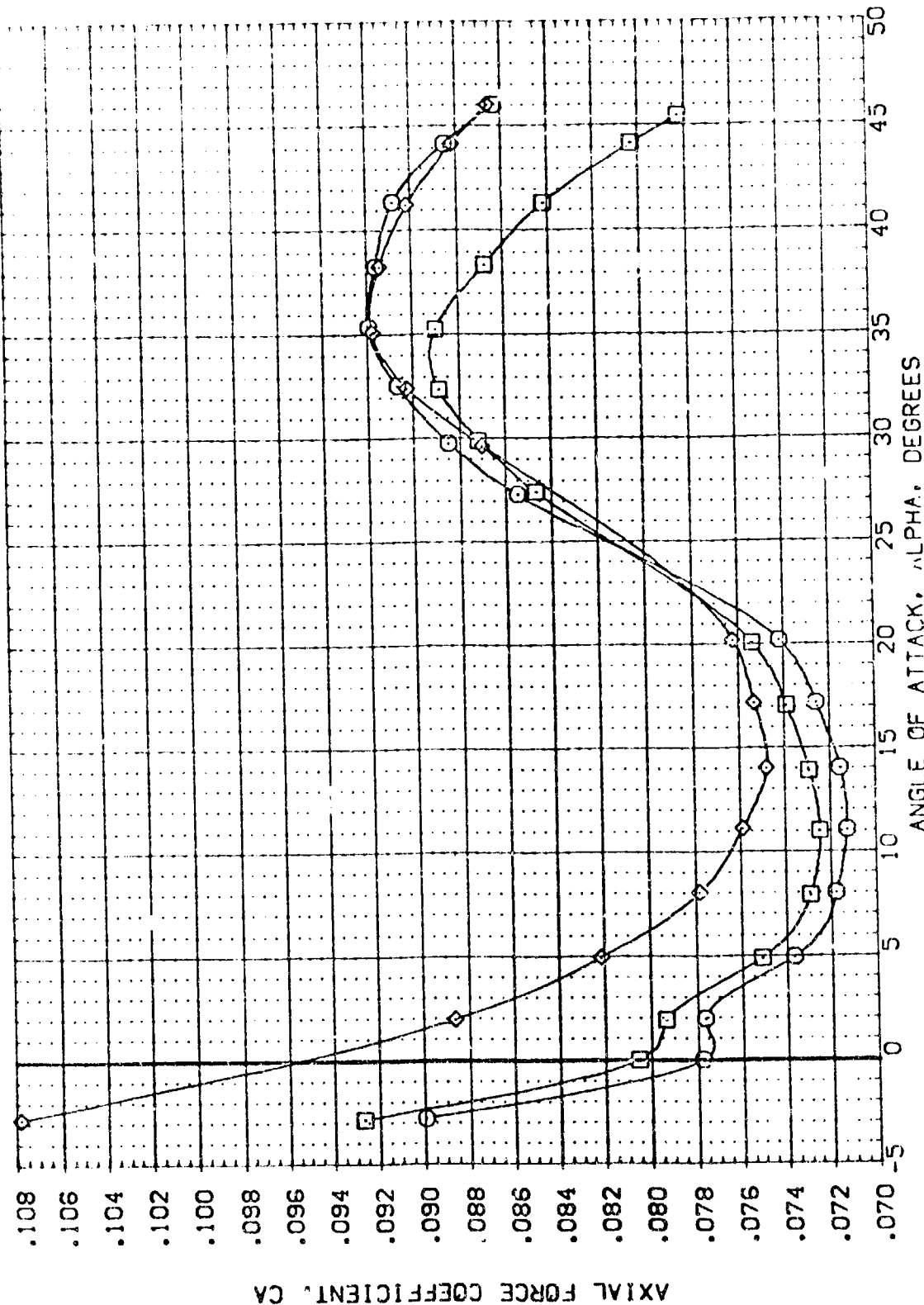


FIG. 7 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=7.32, BOFLAP=-14.75 DEG, -FWD C.G.

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AI, RGN	SPDRBK	BOFLAP	REFERENCE INFORMATION
(GBS043)	AVES 3.5-157-DA11A B1DCS D7 F4 N8 P3 V87E18 V59S	.000	.000	54.920	-14.750	SPREF 2890.0000 SC.F.
(GBS045)	AVES 3.5-157-DA11A B1DCS D7 F4 N8 P3 V87E18 V59S	-20.000	.000	54.920	-14.750	LPREF 1174.8000
(GBS044)	AVES 3.5-157-DA11A B1DCS D7 F4 N8 P3 V87E18 V59S	-40.000	.000	54.920	-14.750	BPREF 938.6000
						XPREF 678.2000
						YREF 400.0000
						ZREF 400.0000
						SCALE 1.0000

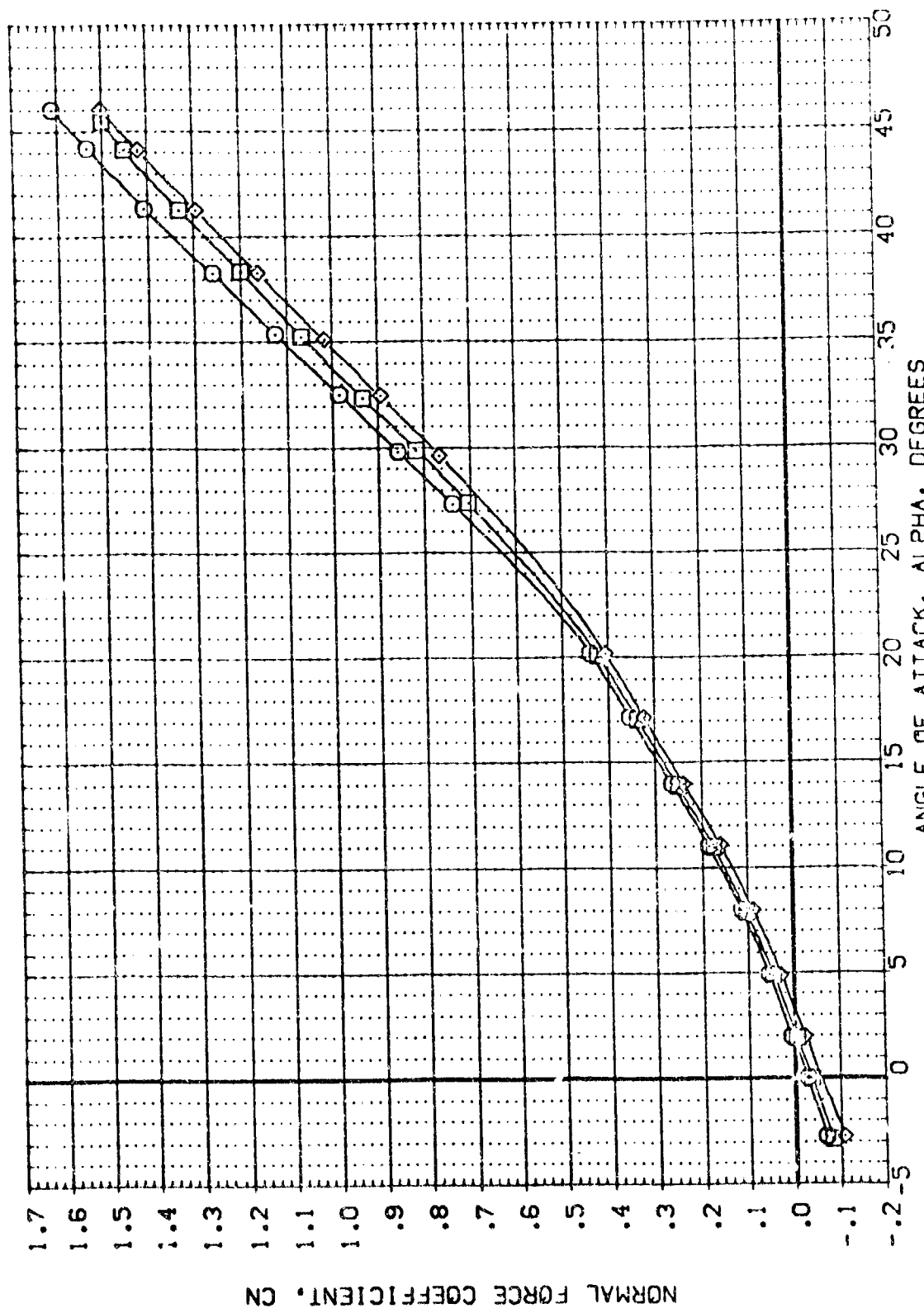


FIG. 7 TOTAL VEHICLE WITH DEFLECTED ELEVONS, $\gamma=7.32$, $\text{BOFLAP}=-14.75$ DEG., FWD C.G.
 (A) $\text{MACH} = 7.32$ PAGE 37

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPDRBK	BDFLAP	REFERENCE INFORMATION
(H5043)	AVES 3.5-157-CA11A 8:005 D7	.000	.000	54.920	-14.750	SREF 2690.0000
(H5045)	AVES 3.5-157-CA11A 8:005 D7	.000	.000	54.920	-14.750	LREF 474.8000
(H5044)	AVES 3.5-157-CA11A 8:005 D7	.000	.000	54.920	-14.750	BREF 936.6800
						YREF 1103.2400
						ZREF 400.0000
						SCALE .0150

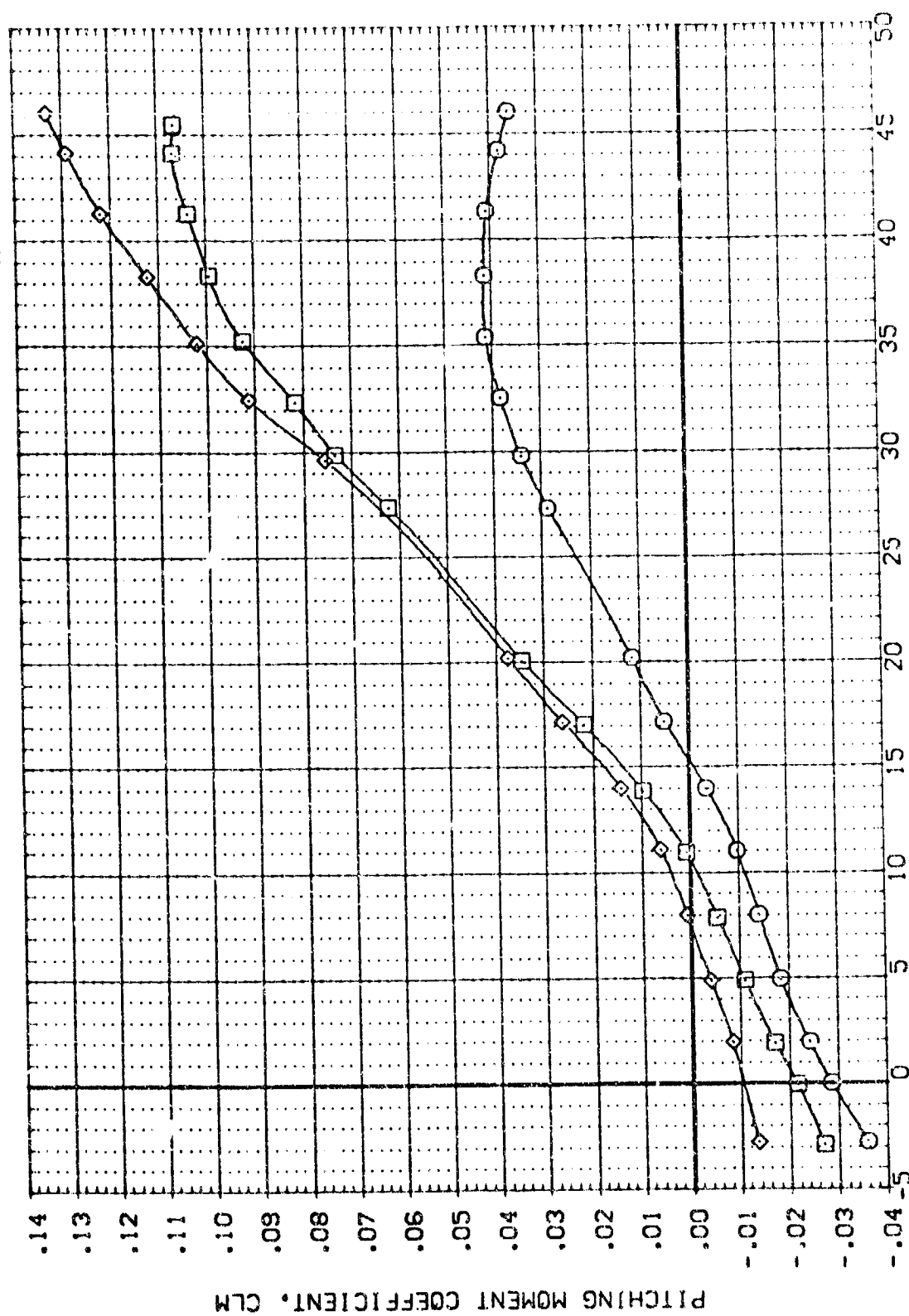


FIG. 7 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=7.32, BDFLAP=-14.75 DEG, -AFT C.G.

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AIRLON	SPDBK	BDFLAP	REFERENCE INFORMATION
(035013)	AVES 3.5-157-CA11A B10CS U7 F4 N8 M3 V87E18 VSRS	.000	.000	54.920	-14.750	SPAC 7690.000
(035045)	AVES 3.5-157-CA11A B10CS U7 F4 N8 M3 V87E18 VSRS	-20.000	.000	54.920	-14.750	BOEF 474.800
(035044)	AVES 3.5-157-CA11A B10CS U7 F4 N8 M3 V87E18 VSRS	-40.000	.000	54.920	-14.750	BOEF 935.600
						XPRD 1015.400
						YPRD 100.000
						ZPRD 100.000
						SCALE 101.500

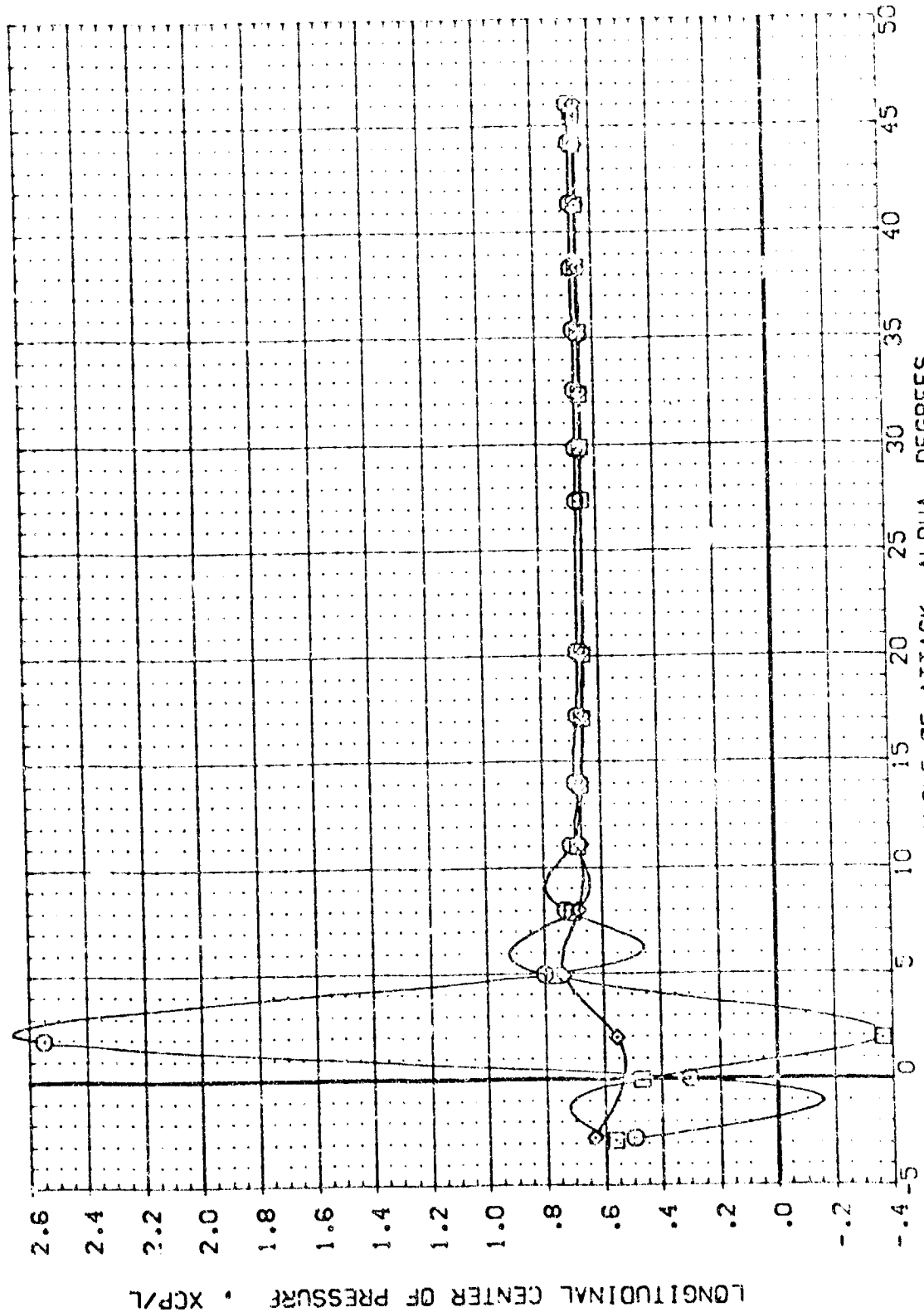
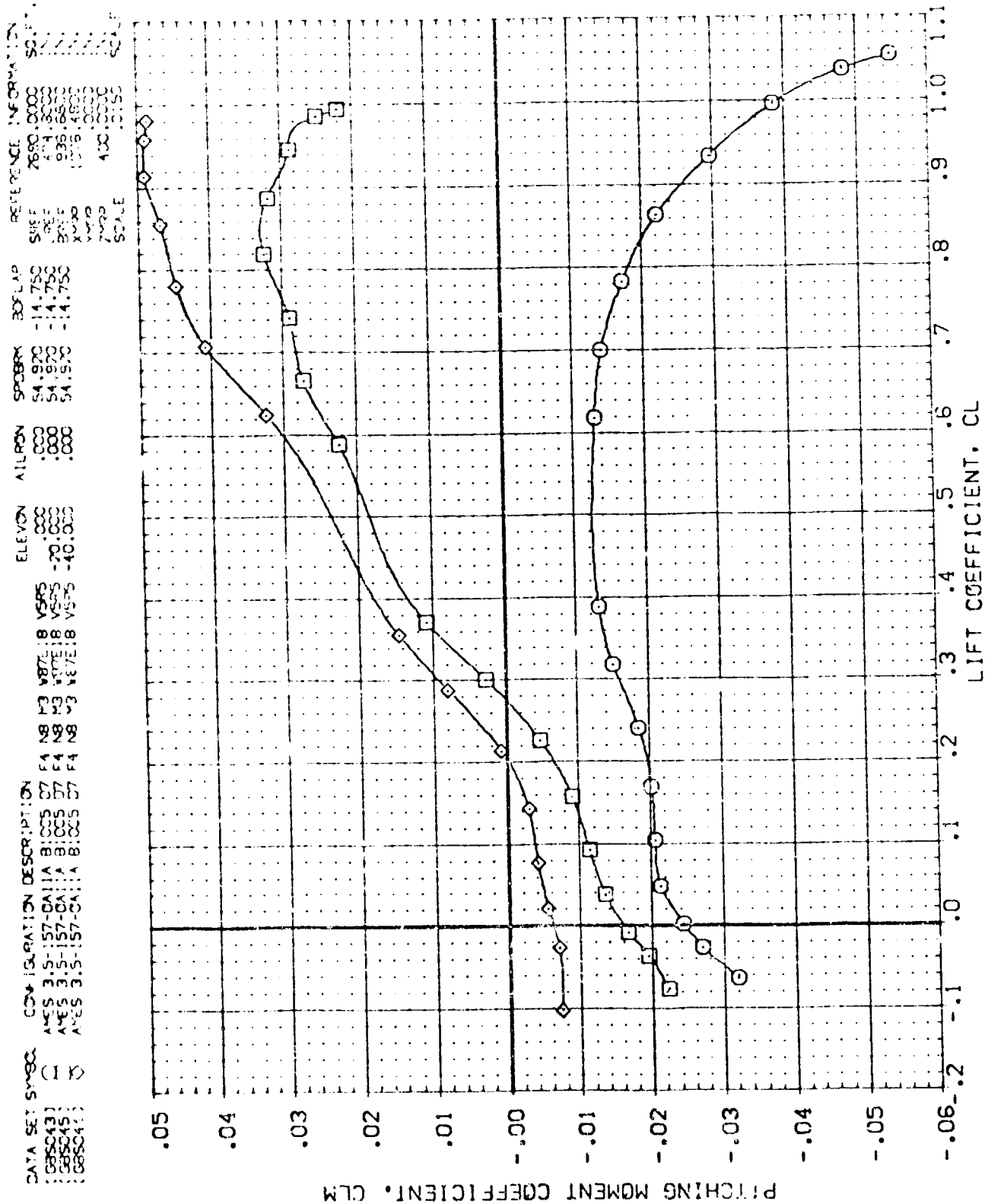
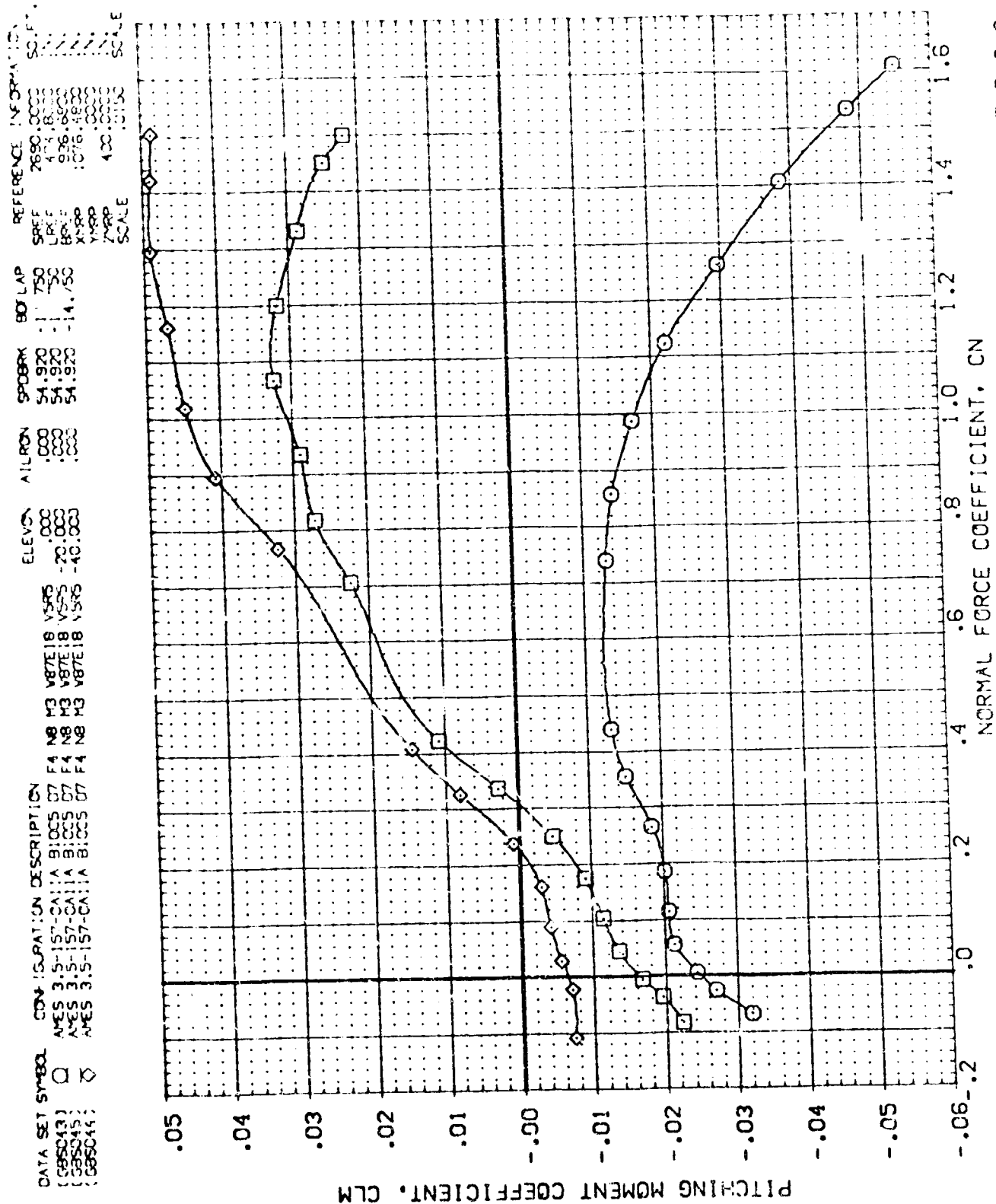


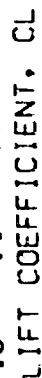
FIG. 7 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=7.32, BDFLAP=-14.75 DEG., -FWJ C.G.
 (A)MACH = 7.32
 PAGE 41



$[A]_{MACH} = 7.32$



DATA SET SINGA
QK
(GSC43)
(GSC45)
(GSC44)



$\{A\}_{MACH} = 7.32$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPOILER	BD FLAP	REFERENCE INFORMATION
(EBS053)	AMES 3.5-157-CA11A B1 CCS D7 F4 N8 M3 V87E18 VSRS	10.000	.000	54.920	-14.750	SPREF 2690.0000
(EBS055)	AMES 3.5-157-CA11A B1 CCS D7 F4 N8 M3 V87E18 VSRS	-20.000	.000	54.920	-14.750	LRREF 474.0000
(EBS054)	AMES 3.5-157-CA11A B1 CCS D7 F4 N8 M3 V87E18 VSRS	-40.000	.000	54.920	-14.750	BRREF 938.6800
						XRREF 1078.4800
						VRREF .0000
						ZRREF .0000
						SCALE 400.0000
						SCALE .0150

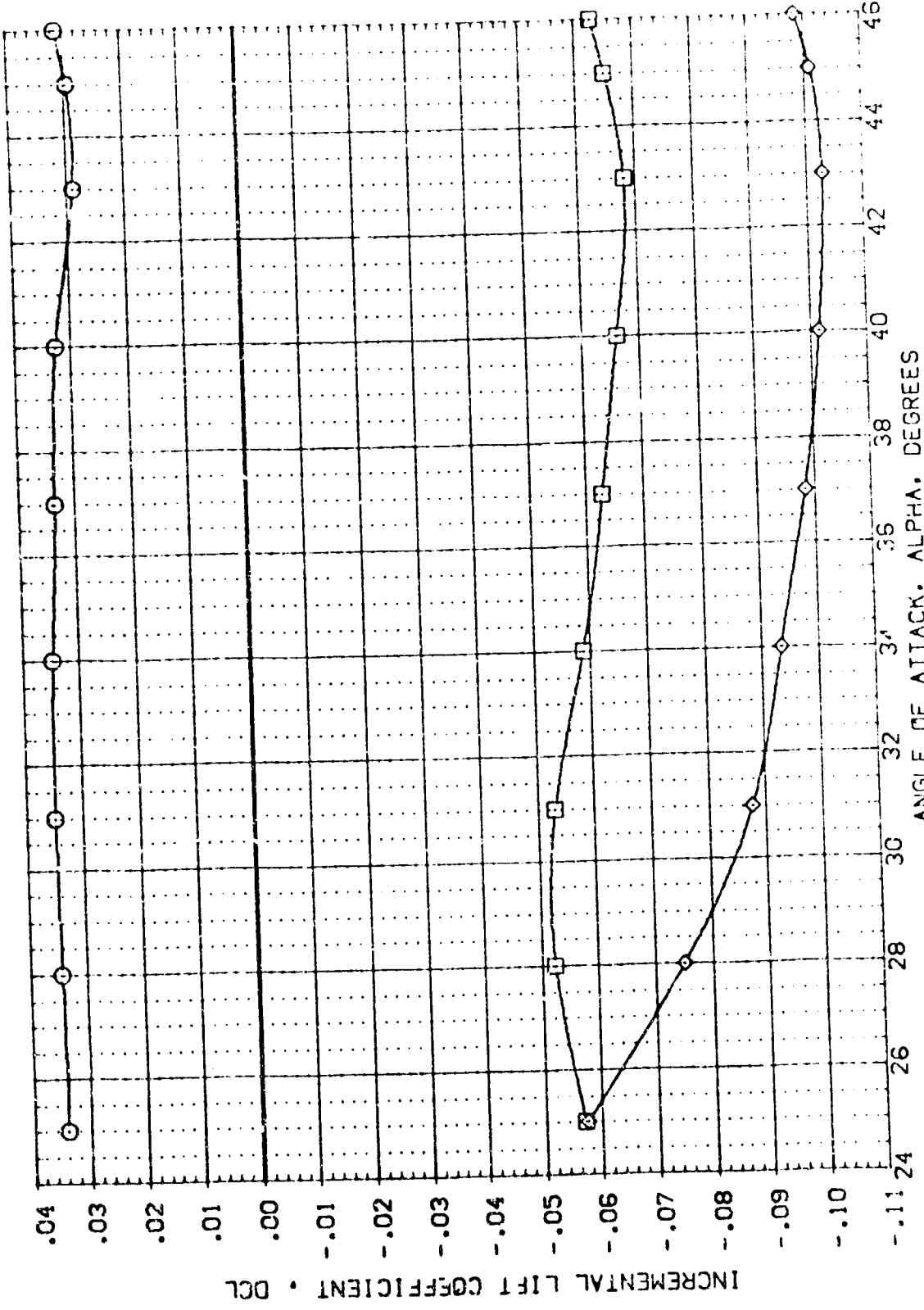


FIG. 8 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=5.27, BD FLAP=-14.75 DEG FWD CG
 (A) MACH = 5.27
 PAGE 45

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	ALPHA	SPIN	BD FLAP	REFERENCE INFORMATION
(EBS033)	AVS 3.5-157-3A	10.000	0.000	54.870	14.750	2800.000
(EBS035)	AVS 3.5-157-3A	10.000	0.000	54.870	14.750	474.8000
(EBS034)	AVS 3.5-157-3A	10.000	0.000	54.870	14.750	938.4000
						1016.4000
						100.0000
						400.0000
						10150
						SCALE

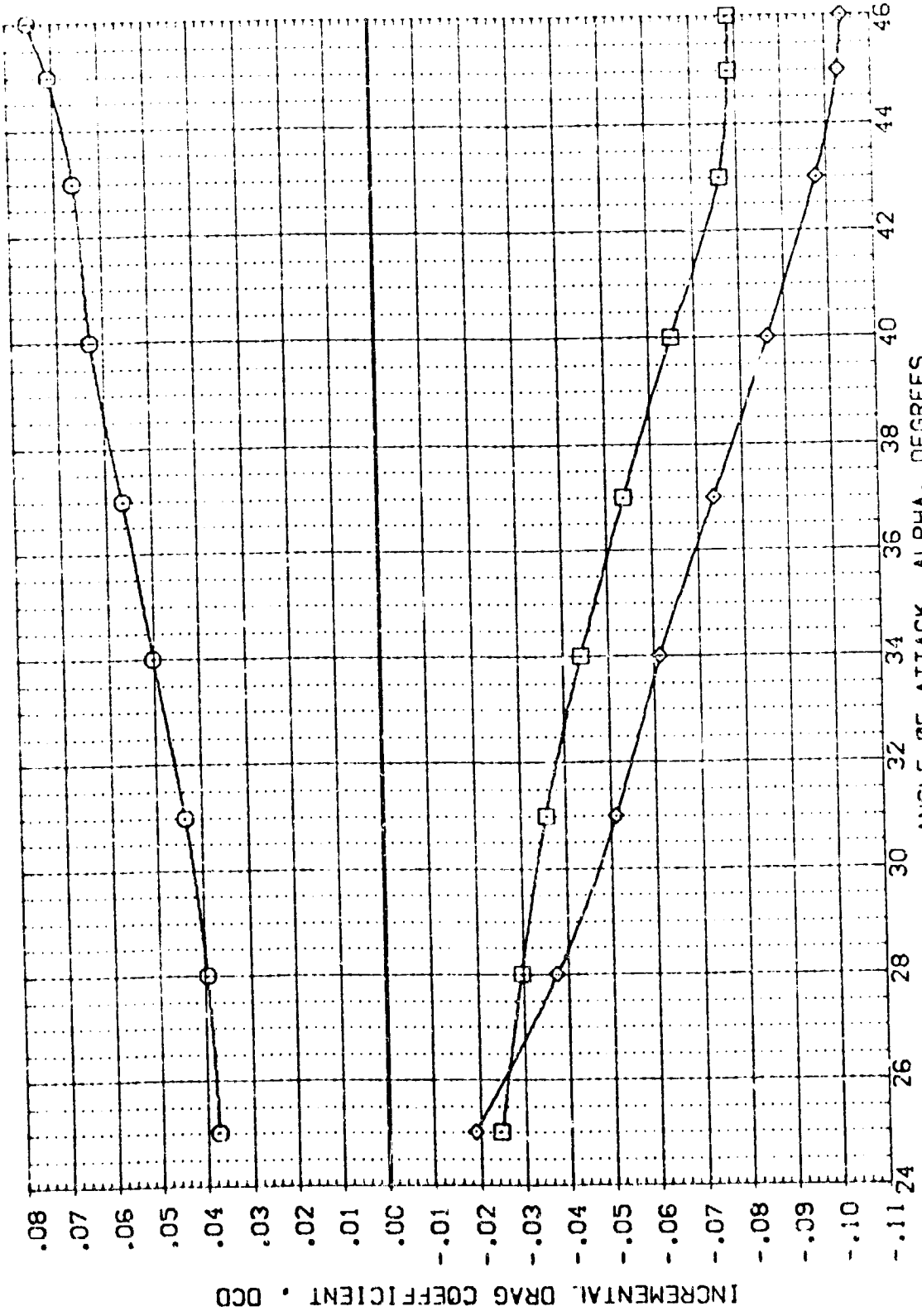
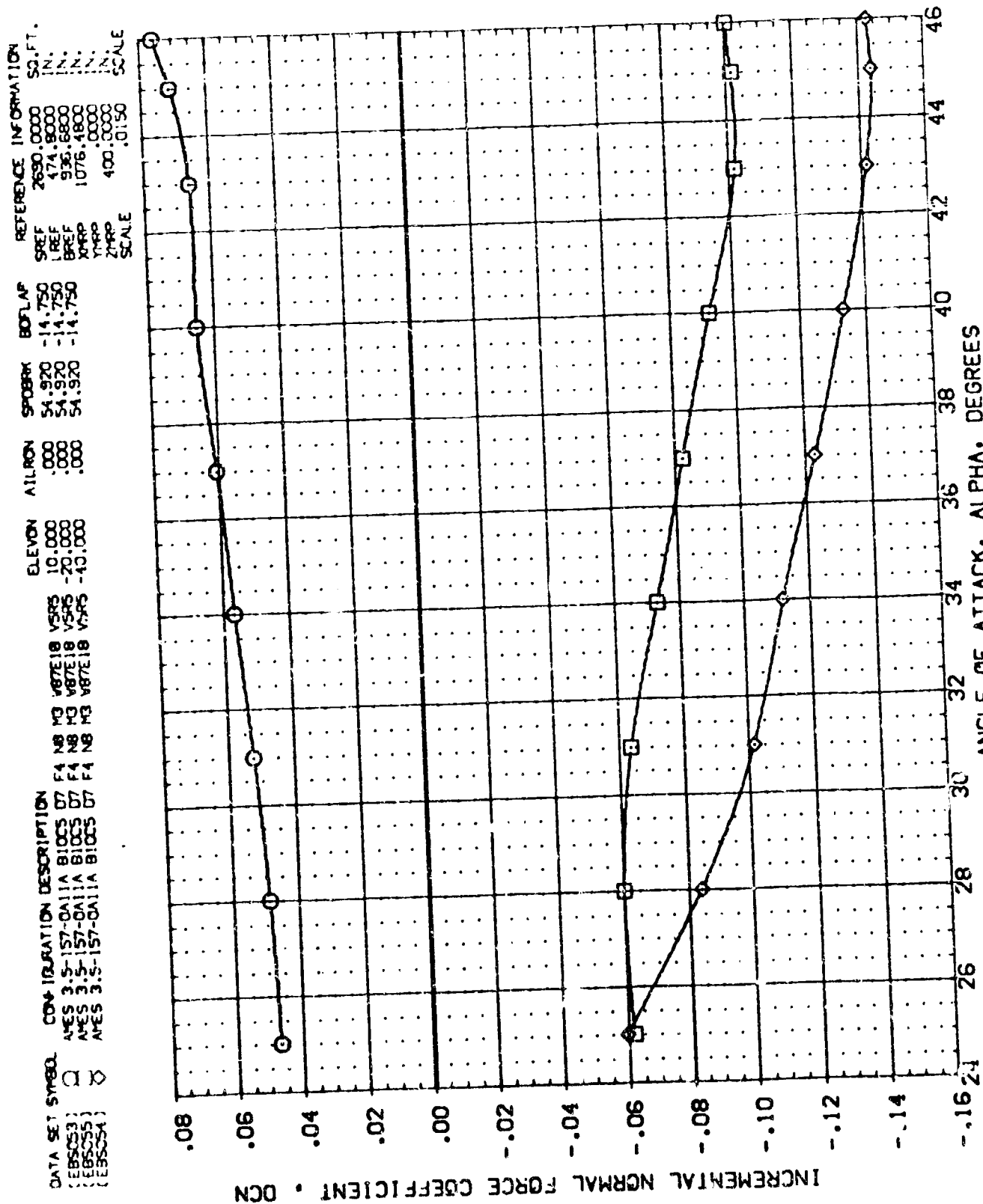


FIG. 8 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=5.27, BD FLAP=-14.75 DEG FWD CG
 (A) MACH = 5.27
 PAGE 46


$$\{A\}_{MACH} = 5.27$$

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELEVON AILERON SPOILER BOFLAP REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPOILER	BOFLAP	REFERENCE INFORMATION
(EBS033)	AMES 3.5-157-0A11A B10CS 07	10.000	.000	54.920	-14.750	SREF 2650.0000
(EBS033)	AMES 3.5-157-0A11A B10CS 07	-20.000	.000	54.920	-14.750	LREF 474.8000
(EBS034)	AMES 3.5-157-0A11A B10CS 07	-40.500	.000	54.920	-14.750	BREF 936.6900
						XREF 1076.4800
						YREF 400.0000
						ZREF 400.0000
						SCALE .0150

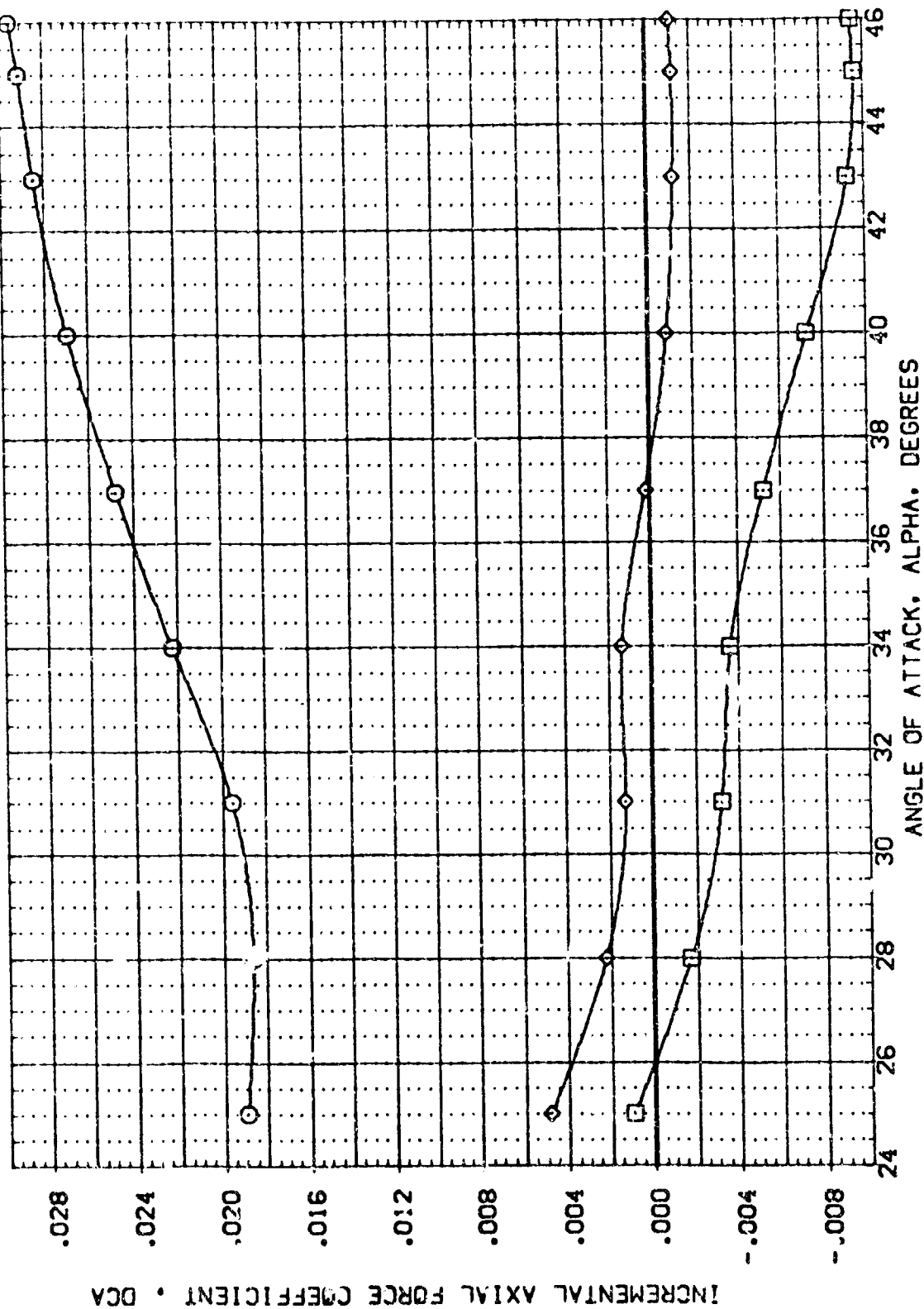


FIG. 8 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=5.27, BOFLAP=-14.75 DEG FWD CG
(A) MACH = 5.27

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELEVON AIRLON SPOILER BOFLAP REFERENCE INFORMATION

(EBS053)	AVES 3.5-157-CALIA 8:00S 27	F4 N8	M3	V87E18	V87S	10.000	.000	54.920	-14.750	SREF	2690.0000	SC.F.
(EBS055)	AVES 3.5-157-CALIA 8:00S 27	F4 N8	M3	V87E18	V87S	-20.000	.000	54.920	-14.750	LREF	474.8000	7.77
(EBS054)	AVES 3.5-157-CALIA 9:00S 27	F4 N8	M3	V87E18	V87S	-40.000	.000	54.920	-14.750	BREF	936.8800	7.77
										XREF	1076.4800	7.77
										YREF	.0000	7.77
										ZREF	400.0000	7.77
										SCALE	.0150	SCALE

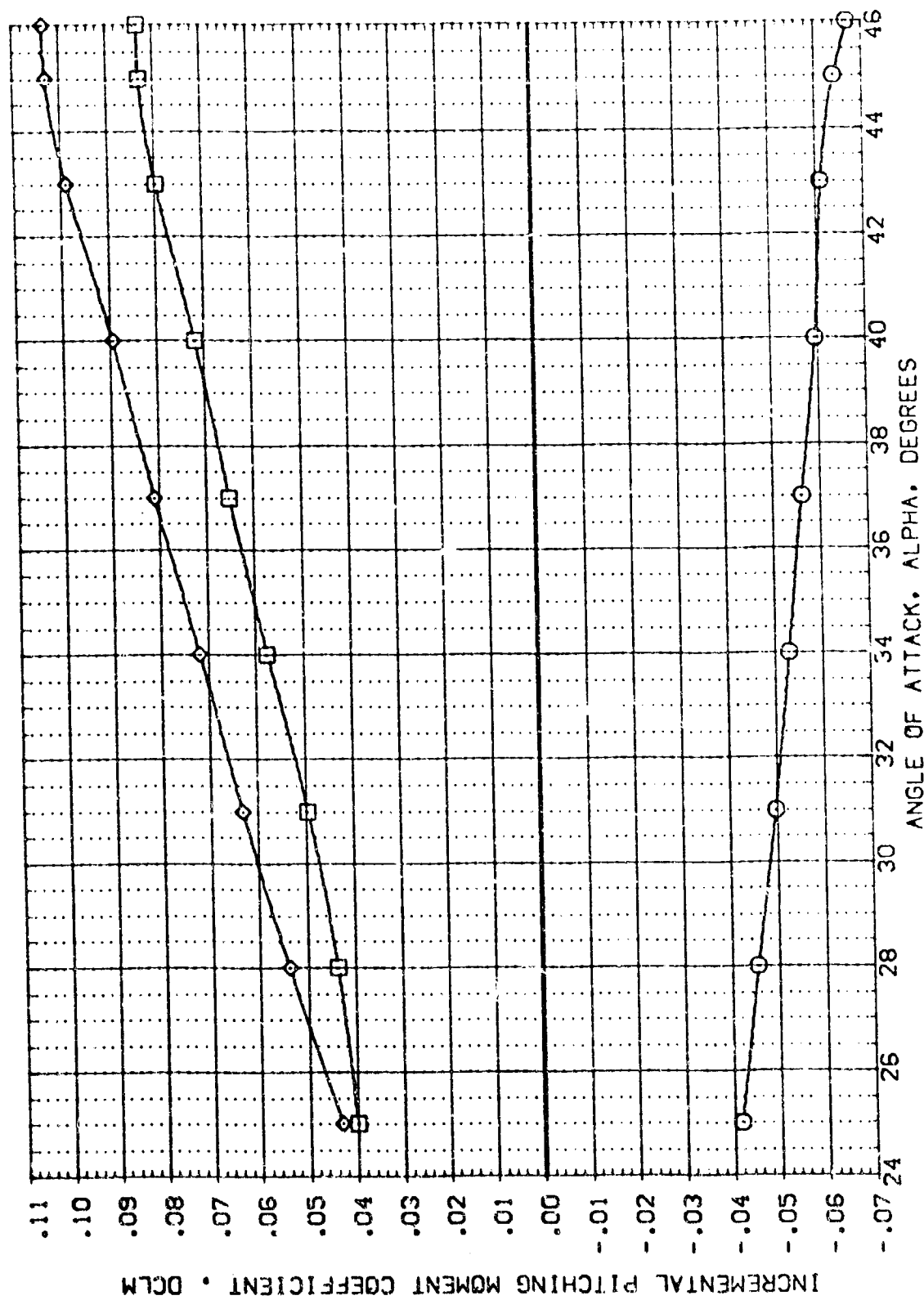


FIG. 8 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=5.27, BOFLAP=-14.75 DEG FWD CG

(A) MACH = 5.27

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPOILER	BOFLAP	REFERENCE INFORMATION
(FBSUS3)	AVES 3.5-157-CA11A B10CS	.000	.000	54.920	-14.750	SREF 2630.0000
(FBSUS3)	AVES 3.5-157-CA11A B10CS	.000	.000	54.920	-14.750	LREF 474.8000
(FBSUS4)	AVES 3.5-157-CA11A B10CS	.000	.000	54.920	-14.750	BREF 936.8800
						XREF 1103.2400
						YREF .0000
						ZREF .0000
						SCALE 400.0000
						SCALE 10.0000

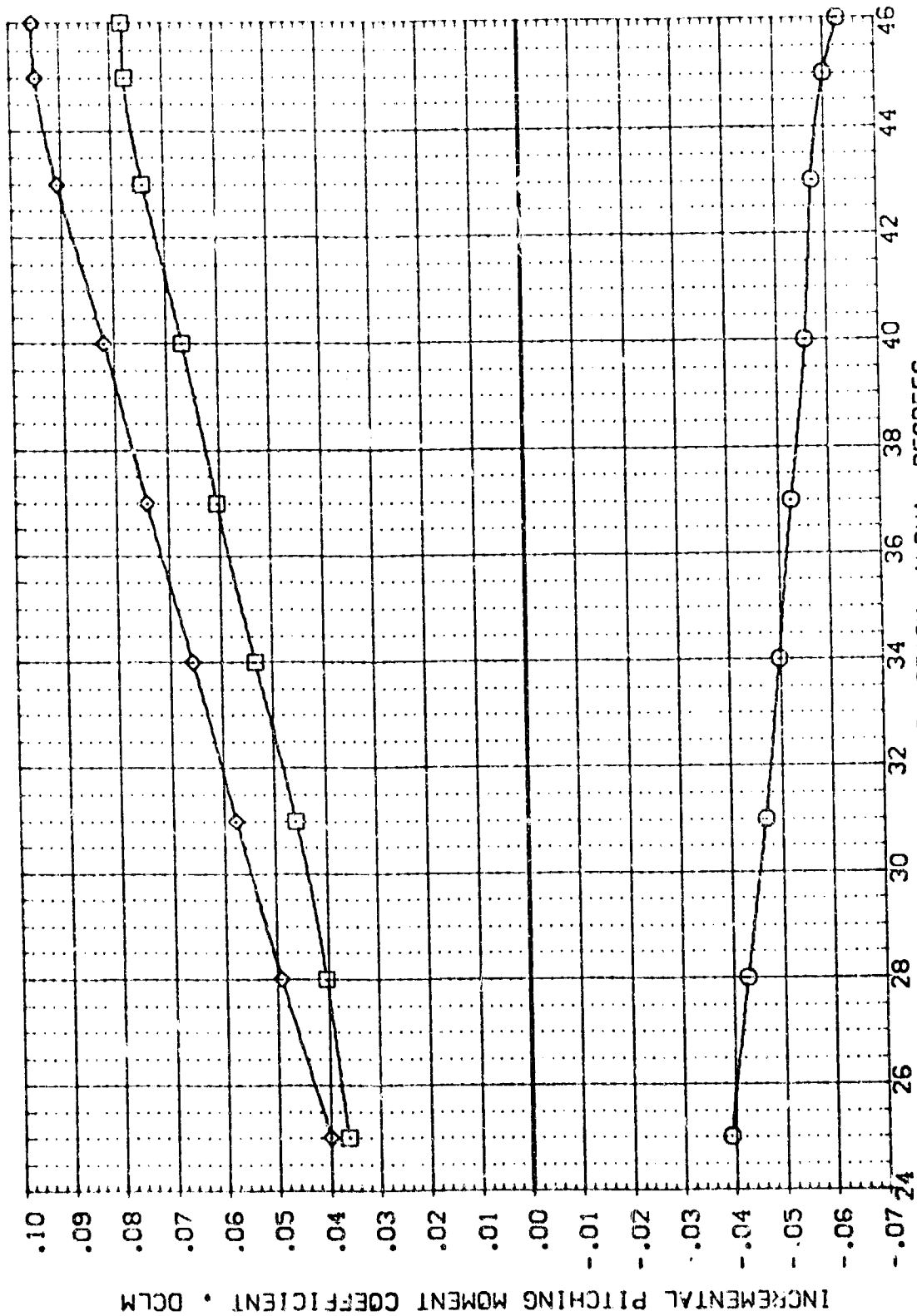


FIG. 8 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=5.27, BOFLAP=-14.75 DEG AFT CG
 (A) MACH = 5.27

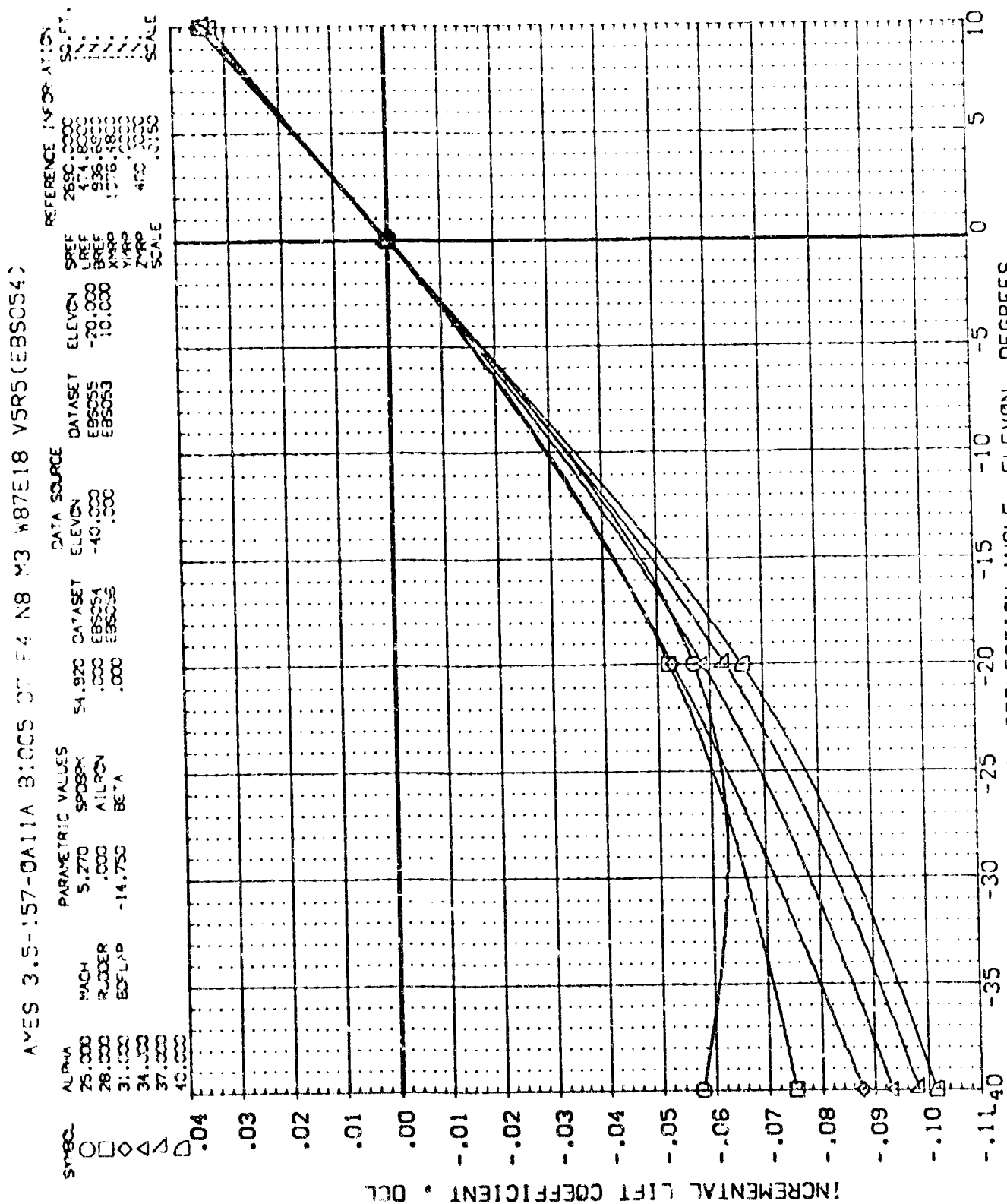


FIG. 8 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=5.27, BOFLAP=-14.75 DEG FWD CG

AMES 3.5-157-0A11A 8:005 D7 E4 N8 M3 W87E18 VSR5(EB5054)

SYMBOL		PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
ALPHA	43.000	MACH	5.270	SP5054	54.920	DATASET	EB5055
45.000		RUDDER	.000	ATLORN	.000	ELEVON	-20.000
46.000		BOFLAP	-14.750	BETA	.000	REF	10.000
						SCALE	400.0000
						SCALE	.0150

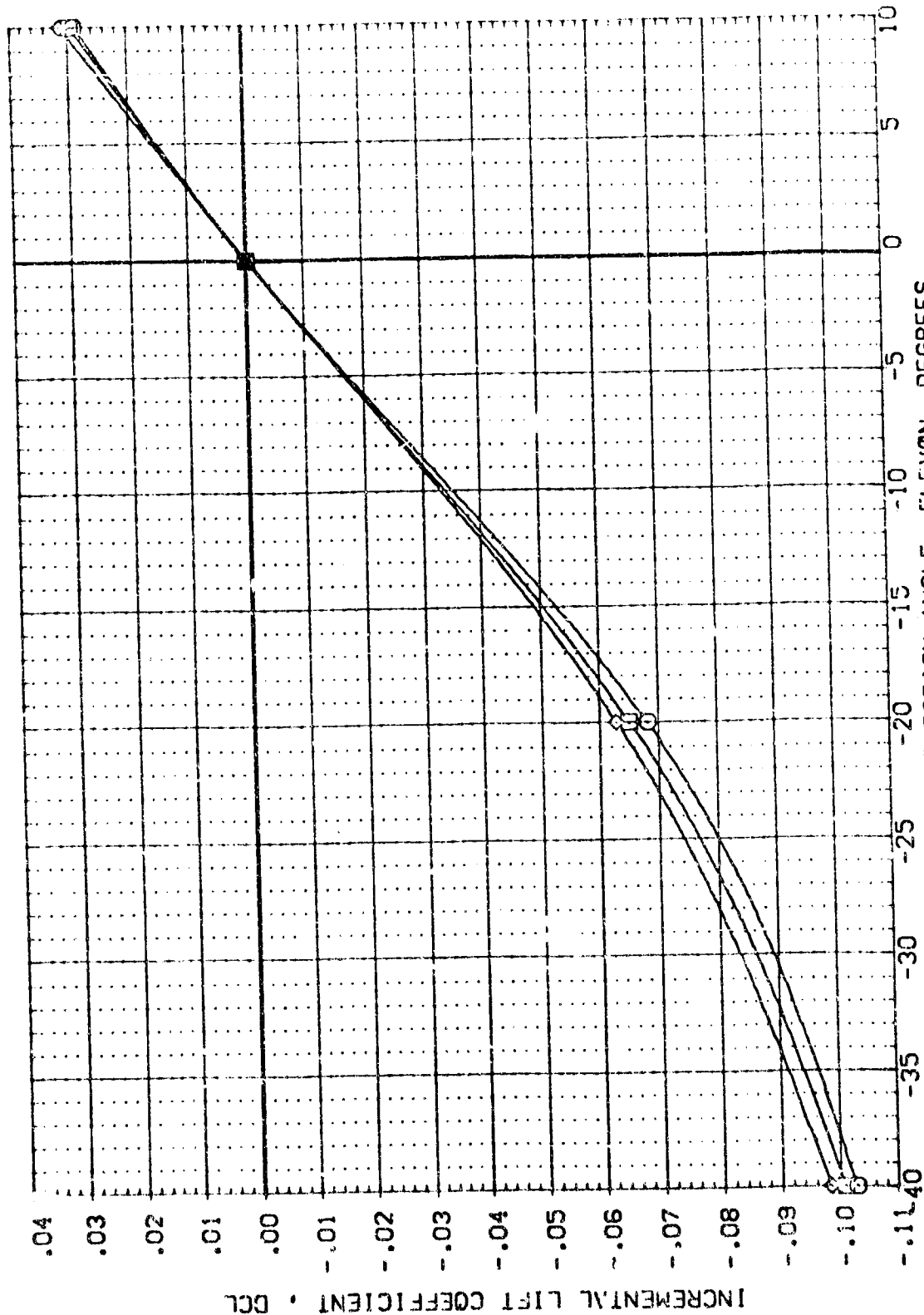


FIG. 8 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=5.27, BOFLAP=-14.75 DEG FWD CG

AVES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5(EBS054)

PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
ALPHA	MACH	SPOSRK	54.920	DATASET	ELEVON	SREF	2690.0000	SC.F.	SCALE
29.000	RLODER	AILRON	.000	EBS054	-40.000	LREF	474.8000	1000	1000
28.000	BOFLAP	BETA	.000	EBS055	10.000	BREF	936.6800	1000	1000
31.000				EBS056		XREF	1076.4800	1000	1000
34.000						YREF	400.0000	1000	1000
37.000						ZREF	400.0000	1000	1000
40.000						SCALE	.0150		

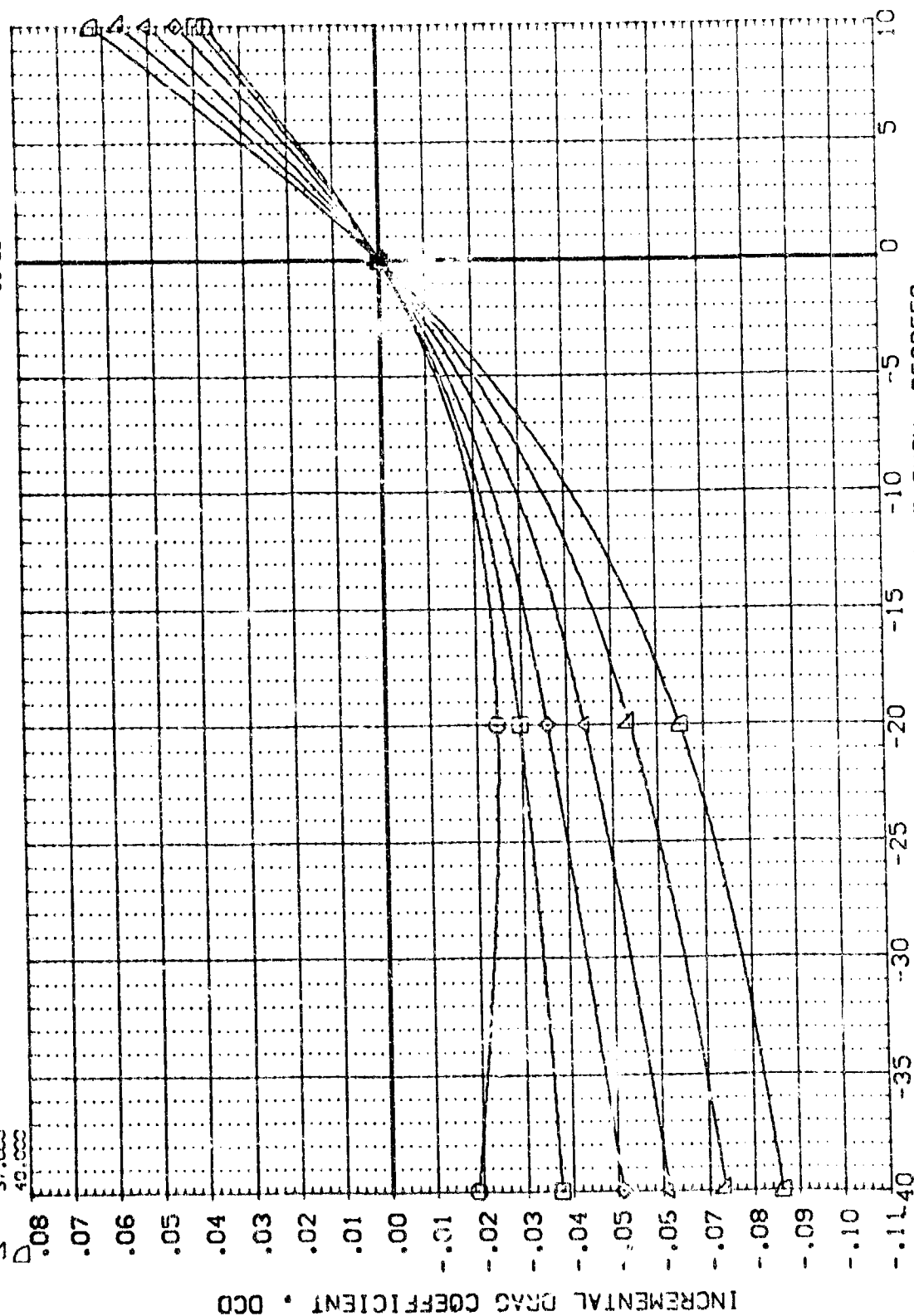


FIG. 8 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, $\alpha=5.27$, $\text{BDFLAP}=-14.75$ DEG FWD CG

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5(EBS054)

SYMBOL	ALPHA	MACH	PAPAMETRIC VALUES	DATA SOURCE	ELEVON	DATASET	ELEVON	SREF	REFERENCE INFORMATION
□	43.000	RUDER	5.270	54.920	.000	EBS054	-20.000	2690.0000	SC.FT.
□	45.000	BOFLAP	.000	.000	.000	EBS053	10.000	474.5000	REF
◇	45.000		-14.750					936.8800	BREF
								1076.4800	XREF
								0.000	YREF
								400.0000	ZREF
								.0150	SCALE

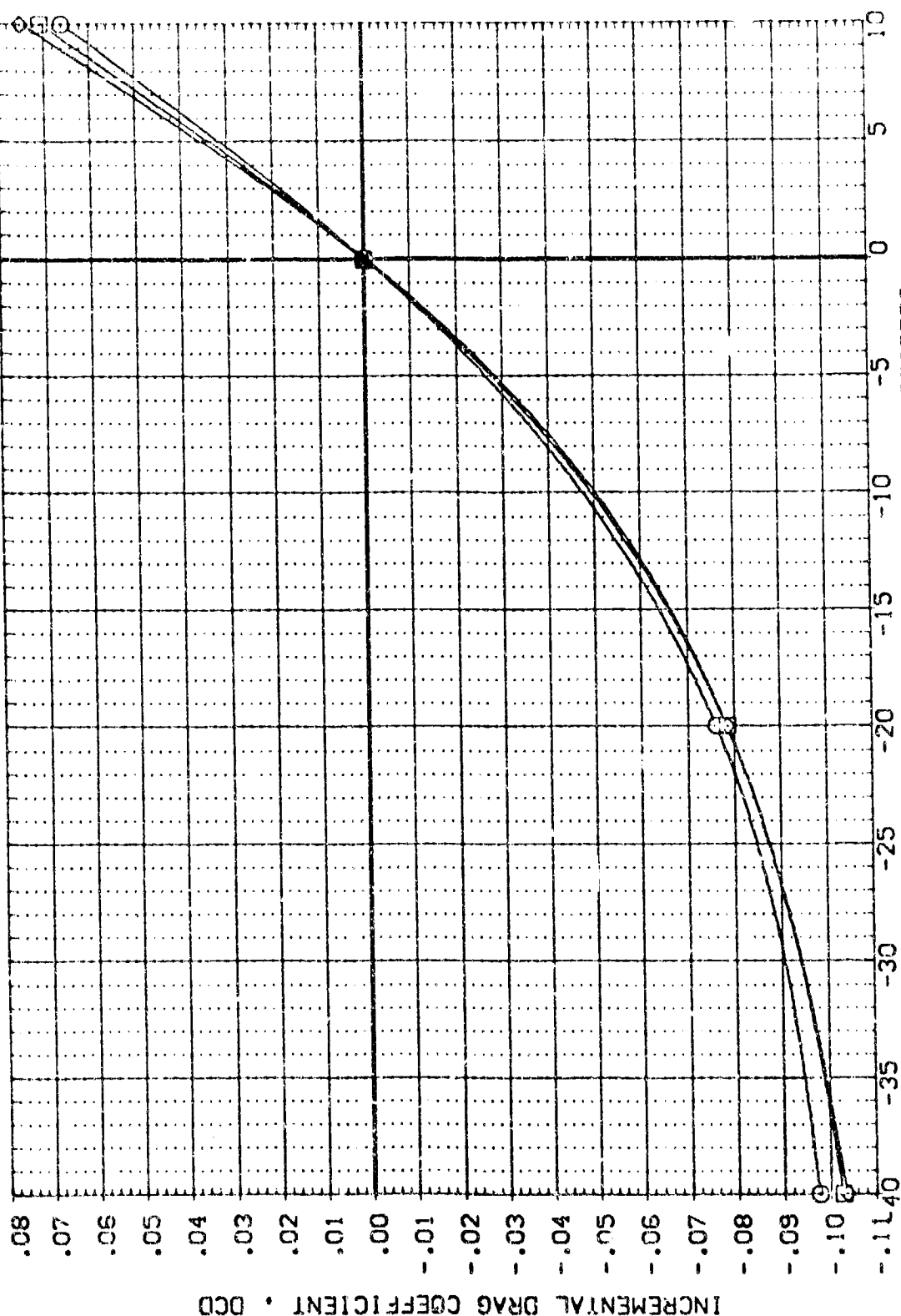


FIG. 8 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=5.27, BOFLAP=-14.75 DEG FWD CG

AVES 3.5-157-0A11A B10C5 07 F4 N8 M3 W87E18 VSR5(EB5054)

PARAMETRIC VALUES			DATA SOURCE			REFERENCE INFORMATION		
ALPHA	NACH	5.270	SPDRK	54.920	DATASET	ELEVON	SREF	2630.0000
25.000	RJDER	.000	AILRON	.000	EB5054	-20.000	LREL	474.8000
28.000	BOFLAP	-14.750	BETA	.000	EB5055	10.000	BREL	936.6800
31.000					EB5056		XMRP	1076.4800
34.000							YMRP	.0000
37.000							ZMRP	400.0000
40.000							SCALE	10.150

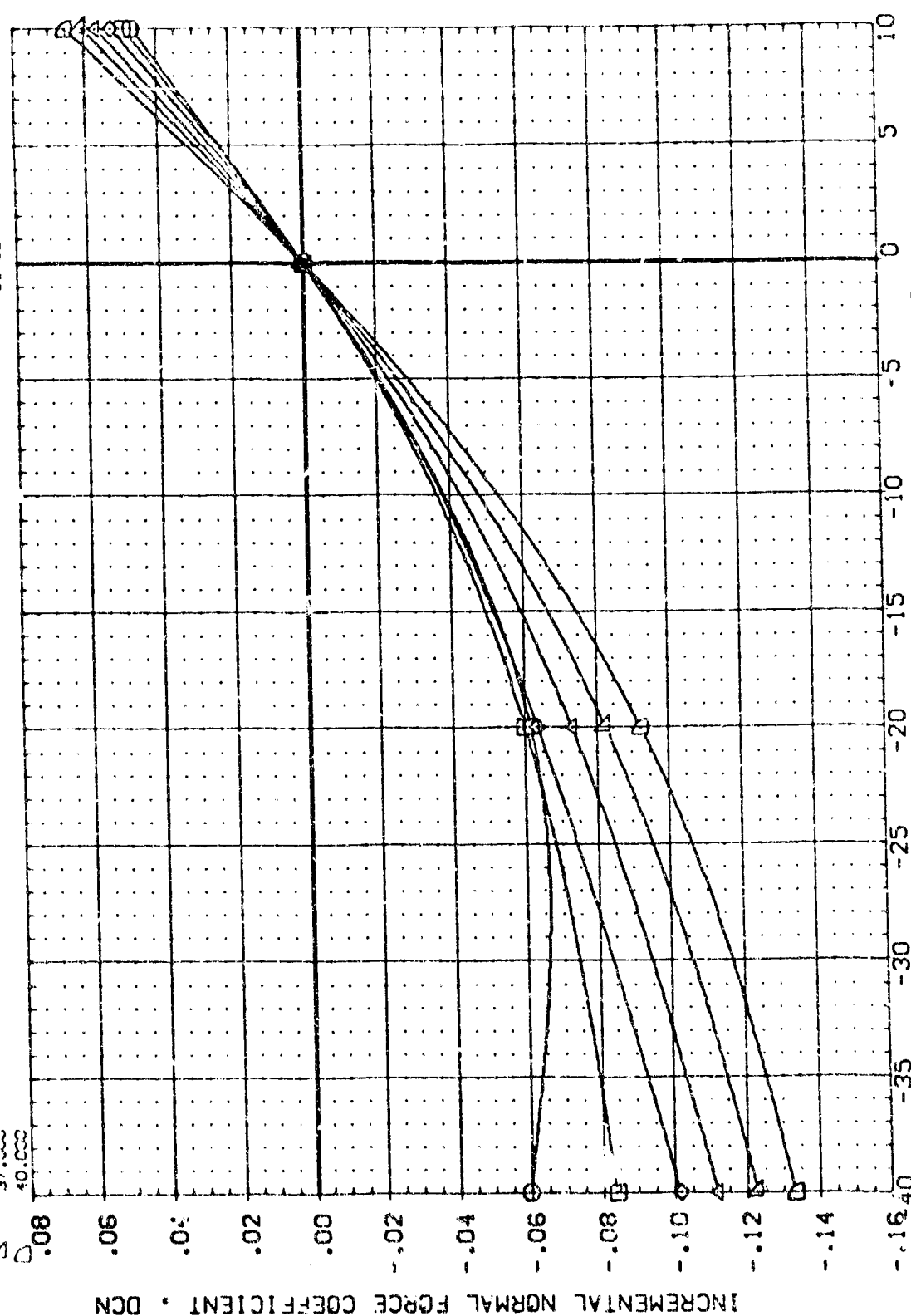


FIG. 8 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=0.27, BOFLAP=-14.75 DEG FWD CG

AMES 3.5-157-CA11A B10C5 D7 F4 N8 M3 W87E18 V5R5(EBS054)

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	DATA SOURCE	DATA SET	ELEVON	SREF	REFERENCE INFORMATION
○	43.000		5.270	SPDRK	54.970	DATA SET	ELEVON	SREF
□	45.000	RUDER	.000	AILRON	.000	EBS054	-20.000	REF
◇	46.000	BOFLAP	-14.750	BETA	.000	EBS053	10.000	REF
					.000	EBS056		XMRP
								YMRP
								ZMRP
								SCALE
								400.0000
								.0150
								SC.FT.
								127.7777

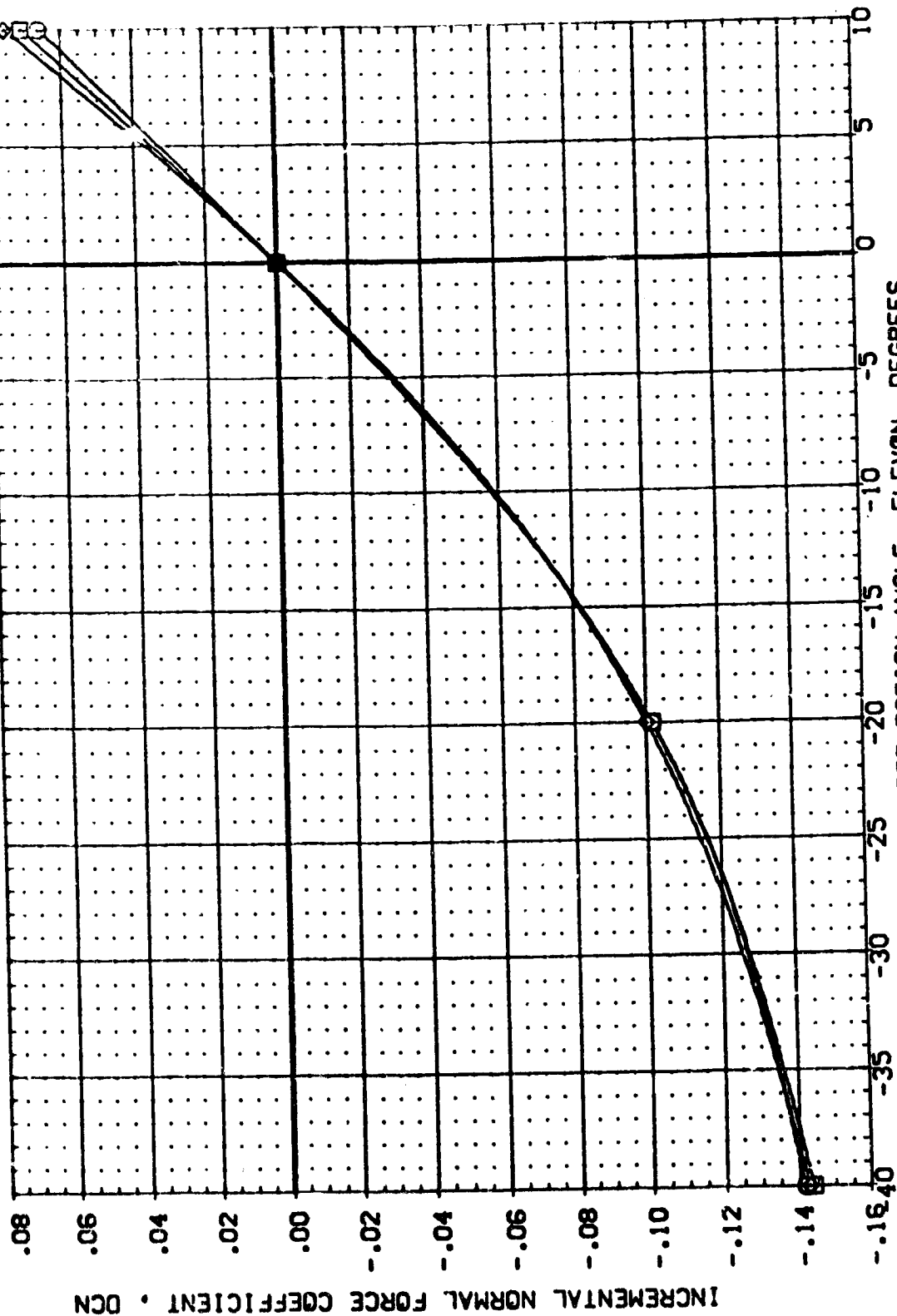


FIG. 8 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=5.27, BOFLAP=-14.75 DEG FWD CG

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5(EBS054)

PARAMETRIC VALUES			DATA SOURCE		REFERENCE INFORMATION	
ALPHA	MACH	SPOBRK	54.920	ELEVON	REF	SO.FT.
25.000	5.270	.000	.000	-40.000	REF	2690.0000
28.000	.000	.000	.000	.000	REF	474.8000
31.000	-14.750	BETA	.000	-10.000	REF	936.8000
34.000			.000		REF	1276.4800
37.000					REF	1700.0000
40.000					REF	2150.0000
					REF	2690.0000
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					REF	113150.0000
					REF	113650.0000
					REF	114150.0000
					REF	114650.0000
					REF	115150.0000
					REF	115650.0000
					REF	116150.0000
					REF	116650.0000
					REF	117150.0000
					REF	117650.0000
					REF	118150.0000
					REF	118650.0000
					REF	119150.0000
					REF	119650.0000
					REF	120150.0000
					REF	120650.0000
					REF	121150.0000
					REF	121650.0000
					REF	122150.0000
					REF	122650.0000
					REF	123150.0000
					REF	123650.0000
					REF	124150.0000
					REF	124650.0000
					REF	125150.0000
					REF	125650.0000
					REF	126150.0000
					REF	126650.0000

FIG. 8 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, $M=5.27$, $\delta O_{FLAP}=-14.75$ DEG FWD CG

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5(EBS054)

AMES 3.5-157-0A11A B1003 07 P4 NO 10 10 10 10 10 10 10 10 10 10									
SYMBOL		PARAMETRIC VALUES				DATA SOURCE		REFERENCE INFORMATION	
ALPHA	MACH	5.270	SPOBRK	54.920	DATASET	ELEVON	ELEVON	SREF	52.5 F.
25.000				.000	EBS054	-40.000	-20.000	LREF	IN.
28.000	RUDDER	.000	AILRCN	.000	EBS056	.000	10.000	BREF	IN.
31.000	BOFLAP	-14.750	BETA	.000	EBS056	.000		YREF	IN.
34.000						.000		ZREF	IN.
						400.0000		SCALE	SCALE
									.6150

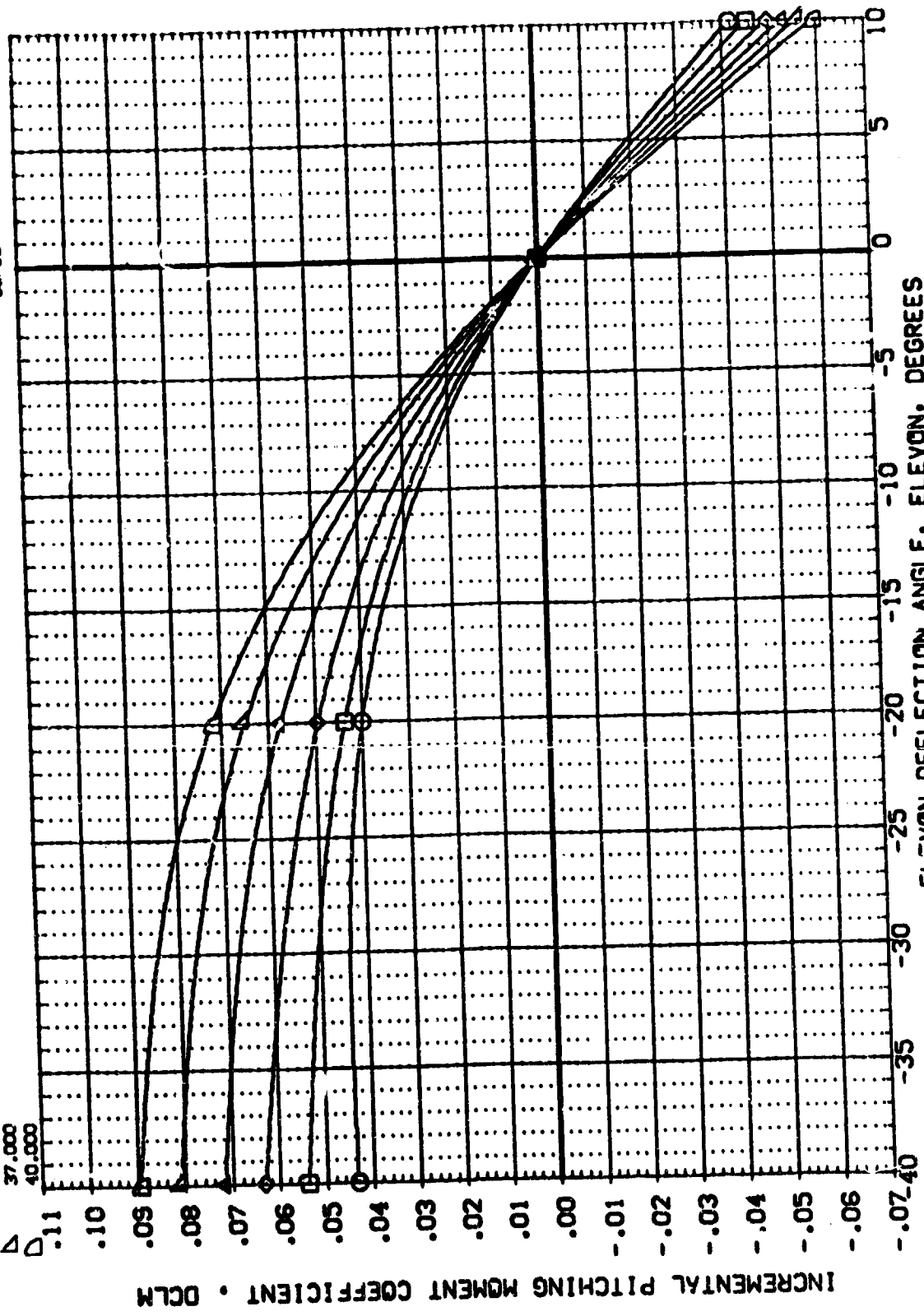


FIG. 8 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=5.27, 80FLAP=-14.75 DEG FWD CG

AMES 3.5-157-0A11A B10C5 U7 F4 N8 M3 W87E18 V5R5 (EBS054)

SYMBOL
☐ ☐ ☐

ALPHA
 43.000
 45.000
 46.000

MACH
 5.270
 5.270
 5.270

PARAMETRIC VALUES
 SPOILER
 AILERON
 BETA

DATA SOURCE
 ELEVON
 ELEVON

DATASET
 EBS054
 EBS056

ELEVON
 -20.000
 10.000

REF
 LREF
 BREF
 YREF
 ZREF
 SCALE

REFERENCE INFORMATION
 SQ.FT.
 2650.0000
 474.8000
 536.6800
 1076.4800
 400.0000
 400.0000
 0.050

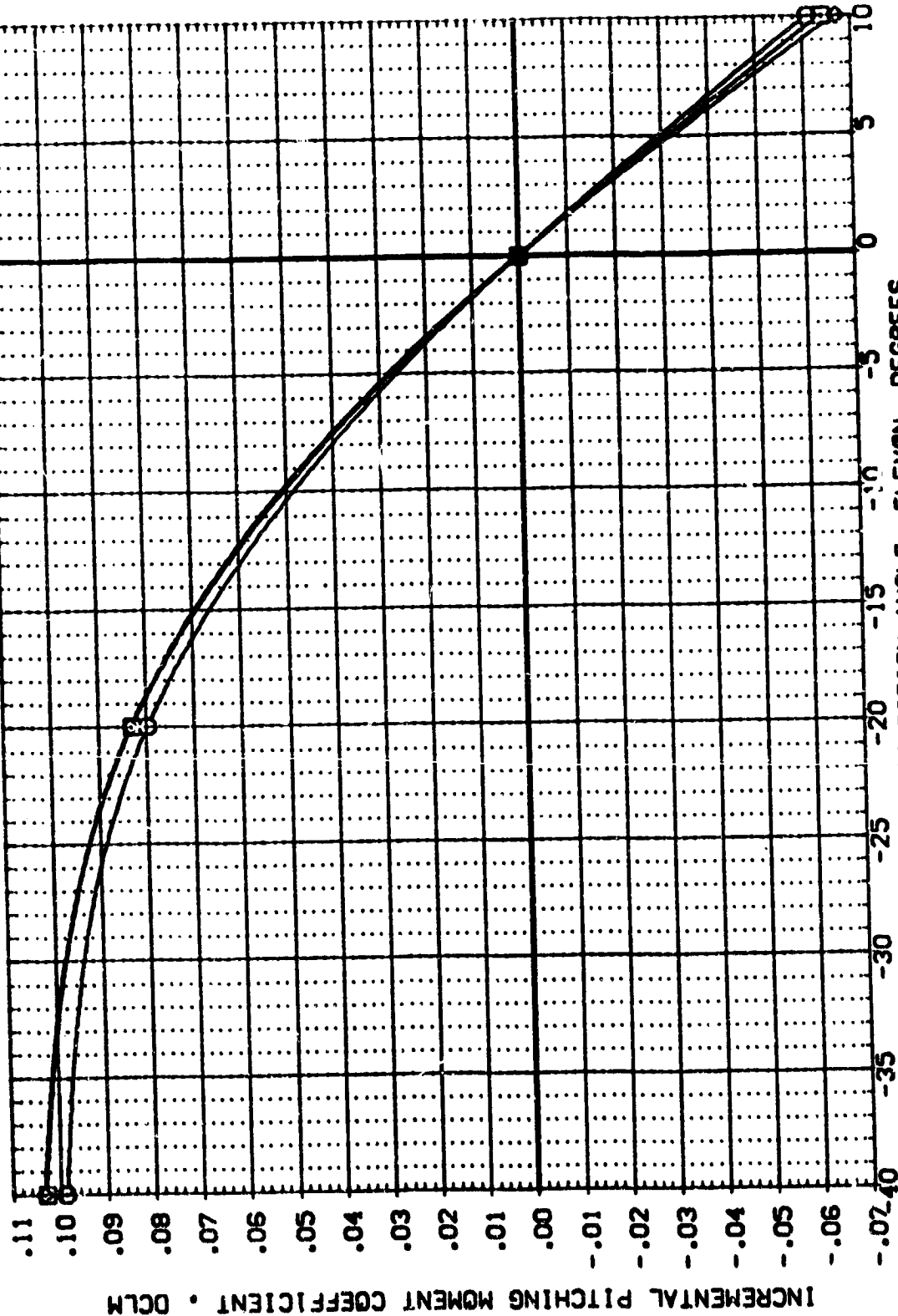


FIG. 8 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=5.27, 80FLAP=-14.75 DEG FWD CG
 ELEVON DEFLECTION ANGLE, ELEVON, DEGREES
 PAGE 60

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5(FBS054)

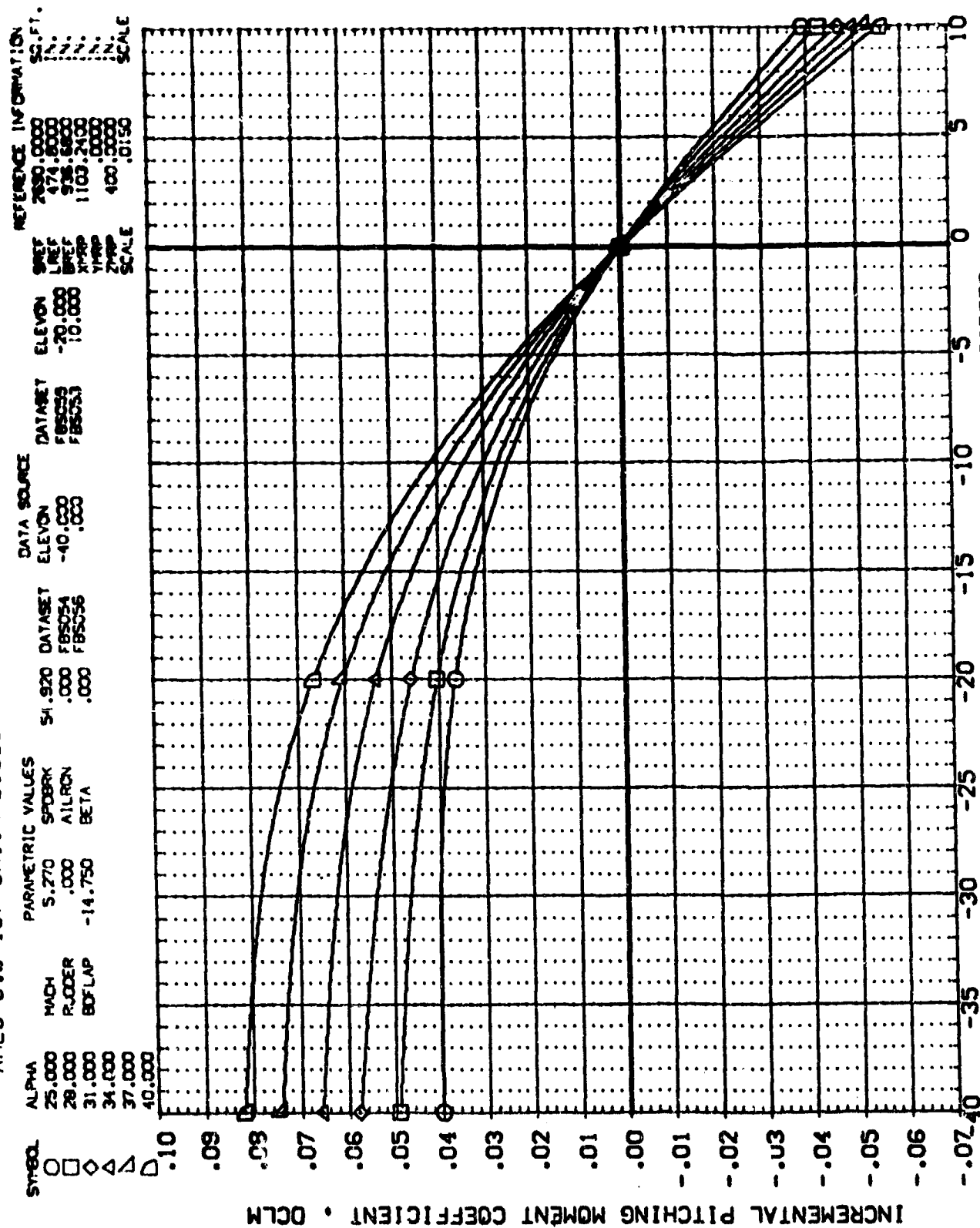


FIG. 8 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=5.27, BOFLAP=-14.75 DEG AFT CG

1000

ALPHA
43.000
45.000
46.000

HACH
RJOER
BOFLAP

PARAMETRIC VALUES

54.920 DATASET
.000 FBSC54
.000 FBSC56

DATA SOURCE
ELEVON

DATASET	ELEVON
FBS050	-20.070
FBS050	10.100

2690.0000	SCALE
474.8000	11111111
936.6000	11111111
1103.2400	11111111
0000.0000	SCALE
400.0000	
0.0150	

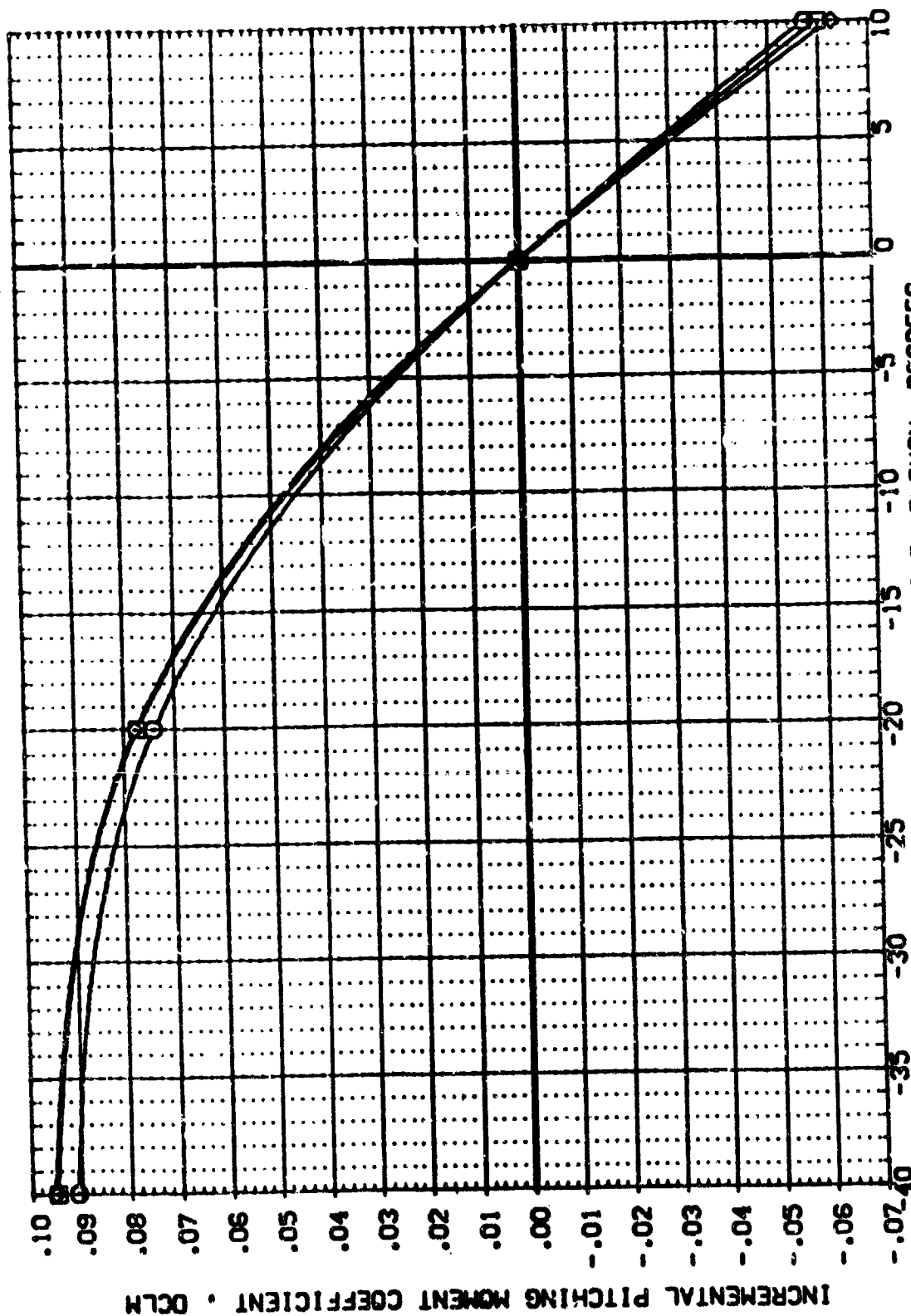


FIG. 8 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, $M=5.27$, $\delta O_{FLAP}=-14.75$ DEG AFT CG

REFERENCE INFORMATION	
REF	2690.0000 SQ.FT.
REF	474.6800 N.
REF	936.5800 N.
REF	1076.4800 N.
REF	0000 N.
REF	400.0000 N.
SCALE	.0150

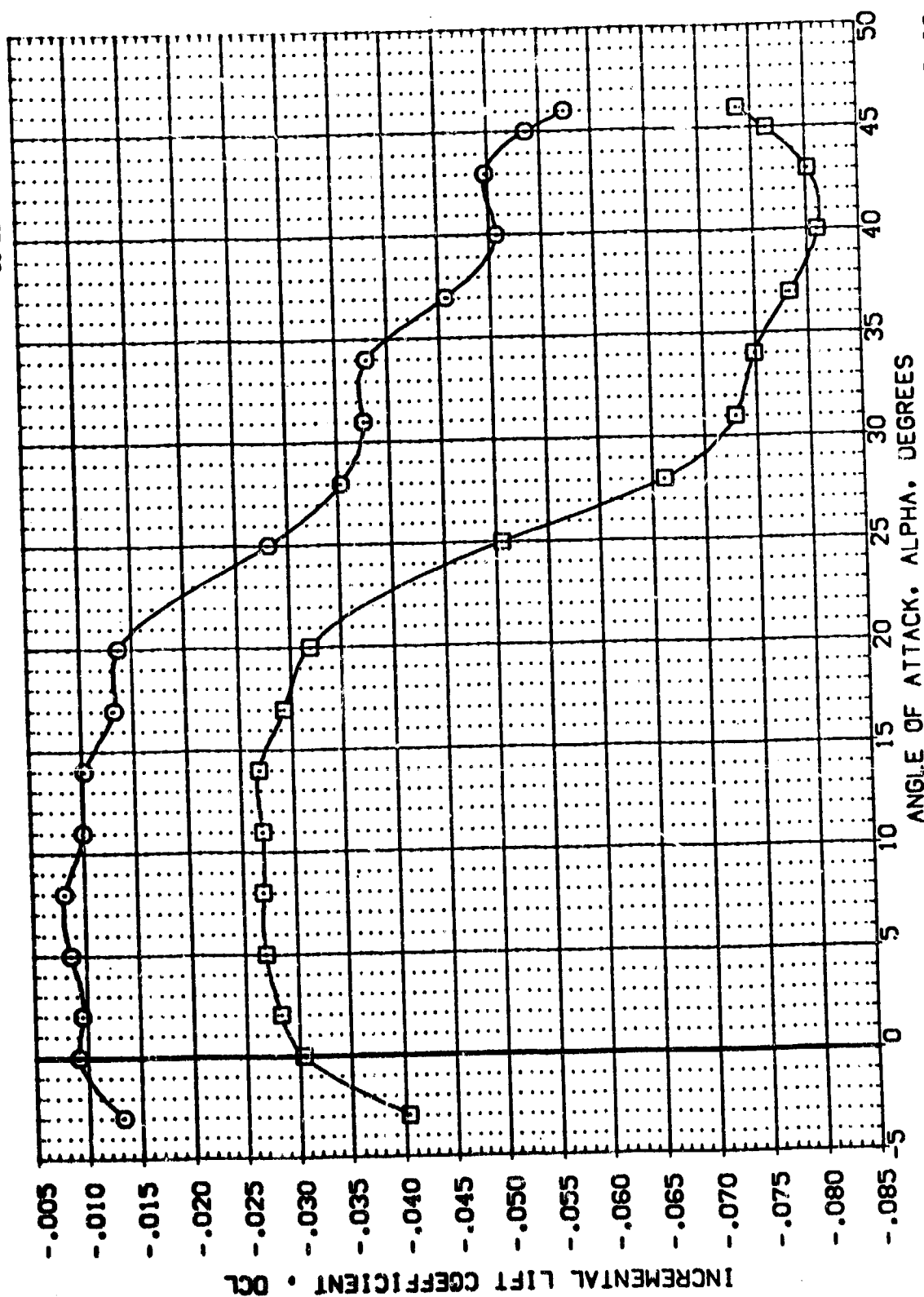


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVON'S, $M=7.32$, $\delta O_{FLAP}=-14.75$ DEG FWD CG

(A)MACH = 7.32

DATA SET SYMBOL: CONFIGURATION DESCRIPTION: REFERENCE INFORMATION: SCALE

(185015)
 (185014)
 APES 3.5-157-0A11A B10CS D7 F4 N8 M3 V87E18 VS05 -20.000
 APES 3.5-157-0A11A B10CS D7 F4 N8 M3 V87E18 VS05 -40.000

ELEVON: AILRON: SPDRK: BDFLAP:
 .000: .000: 34.920: -14.750
 .000: .000: 34.920: -14.750

SREF: 2890.0000
 LREF: 474.8000
 BREF: 836.6000
 XMRP: 1076.1800
 YMRP: .0000
 ZMRP: .0000
 SCALE: 1.0000

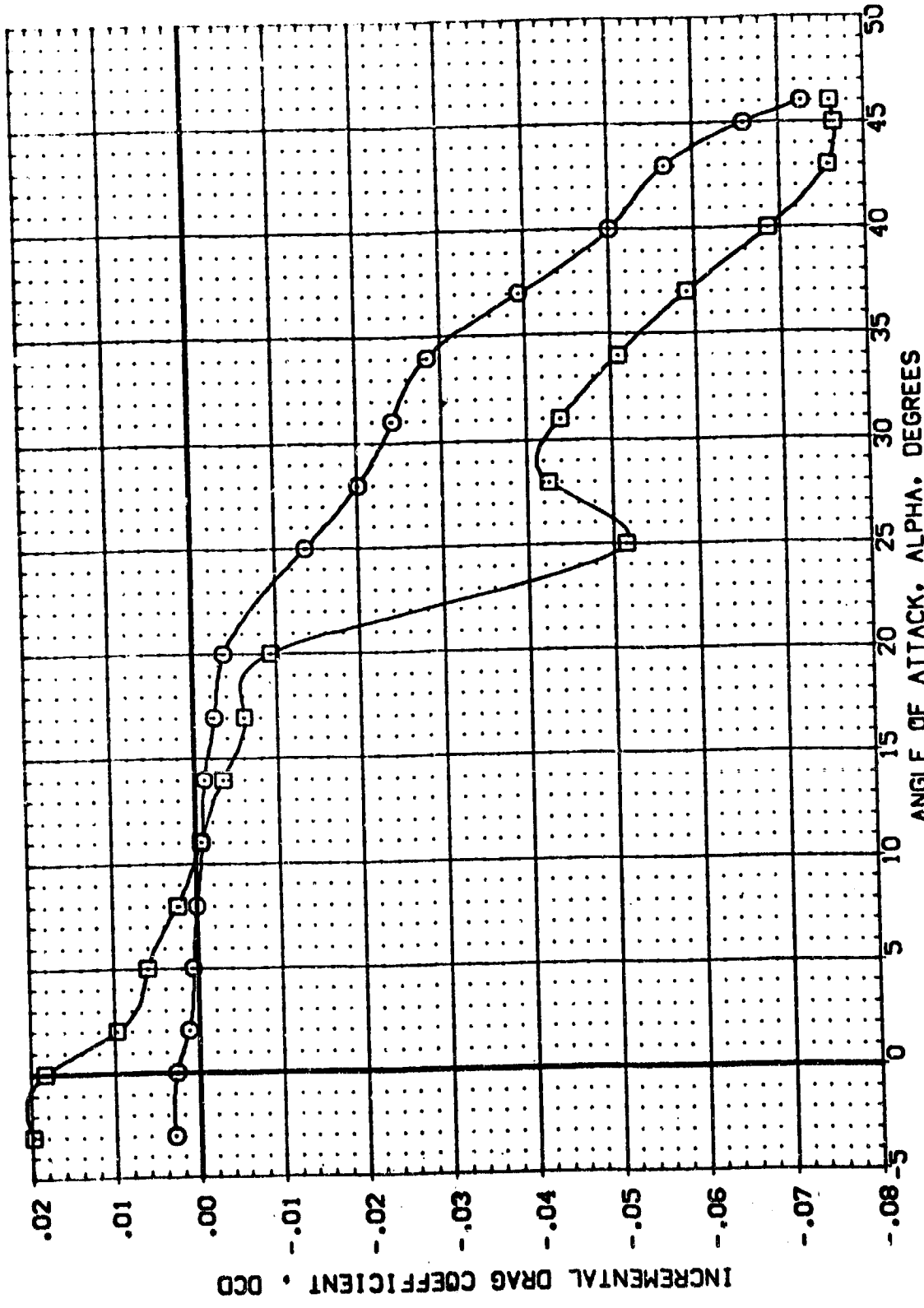


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=7.32, BDFLAP=-14.75 DEG FWD CG
 (A) MACH = 7.32

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILRON	SPOBRK	BDFLAP	REFERENCE INFORMATION
(185045)	AVES 3.5-157-CA11A B10CS D7 F4 N8 M3 V87E18 V5W5 -20.000	-20.000	.000	54.920	-14.750	SREF 2690.0000
(185044)	AVES 3.5-157-CA11A B10CS D7 F4 N8 M3 V87E18 V5W5 -40.000	-40.000	.000	54.920	-14.750	LREF 474.8000
						BREF 936.6800
						YMRP 1076.4800
						ZMRP .0000
						SCALE 400.0000
						SCALE .0150

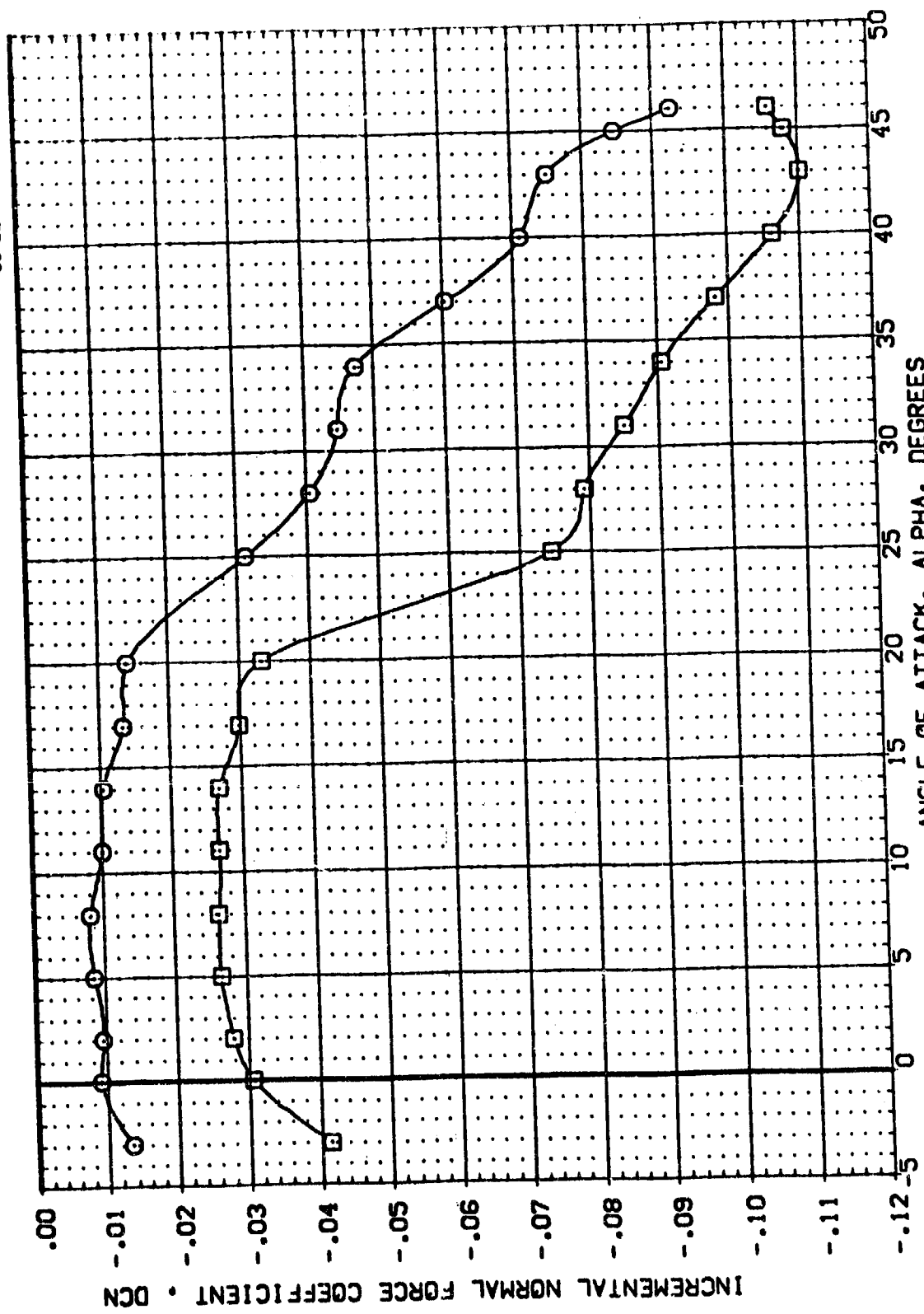


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=7.32, BDFLAP=-14.75 DEG FWD CG
 (A) MACH = 7.32
 PAGE 65

DATA SET SYMBOL: (185045) (185041)

COMBINATION DESCRIPTION: F4 N8 M3 WAVE18 V9P5 -20.000
 F4 N8 M3 WAVE18 V9P5 -40.000

REFERENCE INFORMATION: SC.F.
 SREF 2690.0000
 LREF 474.8000
 BREF 936.6800
 XREF 1076.4800
 YREF .0000
 ZREF .0000
 SCALE 400.0000
 SCALE .0150

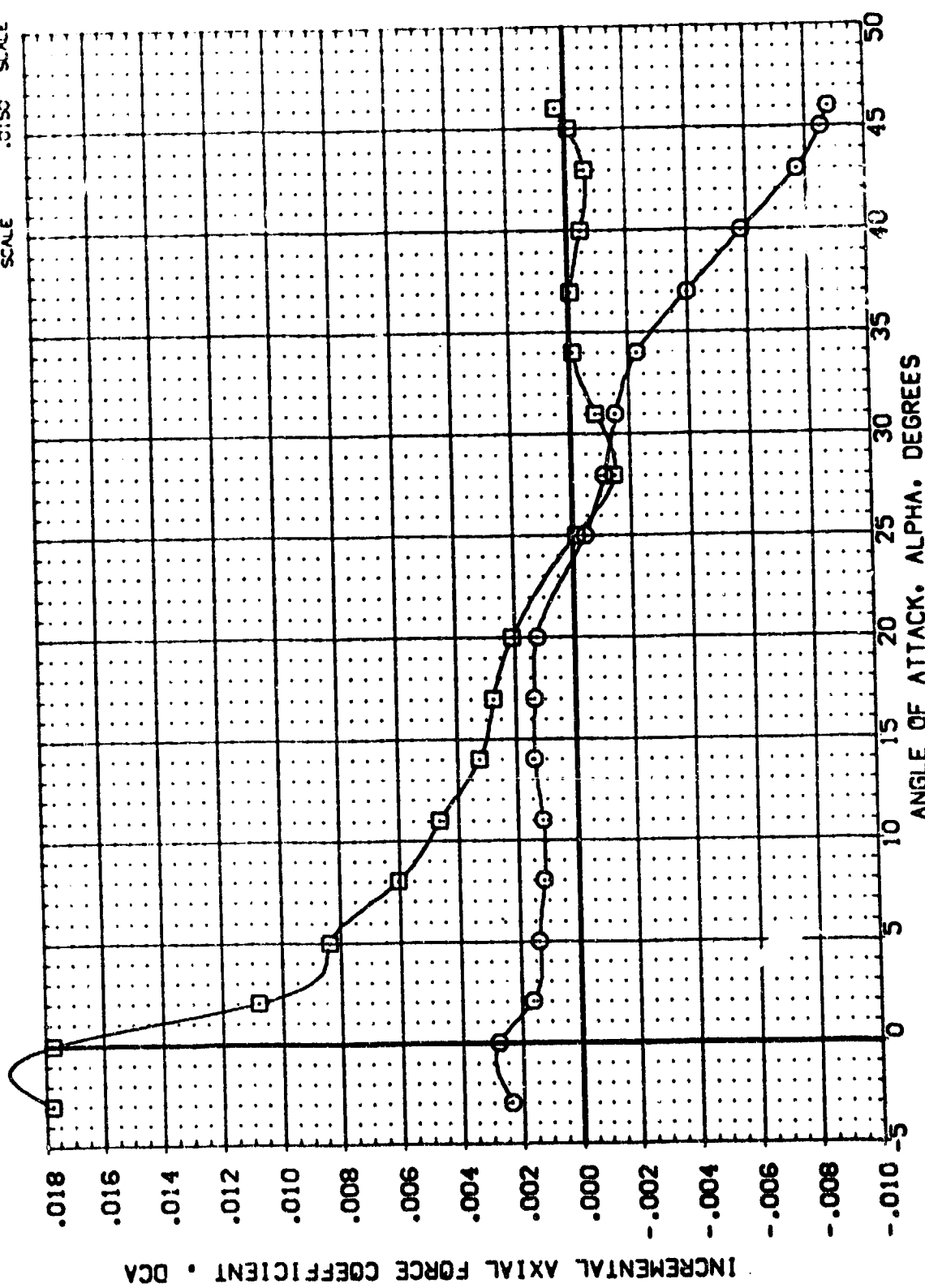


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=7.32, BOFLAP=-14.75 DEG FWD CG
 (A) MACH = 7.32

DATA SET SYMBOL: (185045) (185044)

CONFIGURATION DESCRIPTION: AYES 3.5-157-DA11A B10CS D7 F4 N8 M3 V87E18 V5R5 -20.000 AYES 3.5-157-CA11A B10CS D7 F4 N8 M3 V87E18 V5R5 -40.000

ELEVON: .000 .000

AIRLON: .000 .000

SPOBRK: 54.920 54.920

BOFLAP: -14.750 -14.750

REFERENCE INFORMATION:

SREF: 2690.0000 SG.FT.

LREF: 474.8000

BREF: 936.6800

X-REF: 1076.4800

Y-REF: .0000

Z-REF: .0000

SCALE: 400.0000

SCALE: .0150

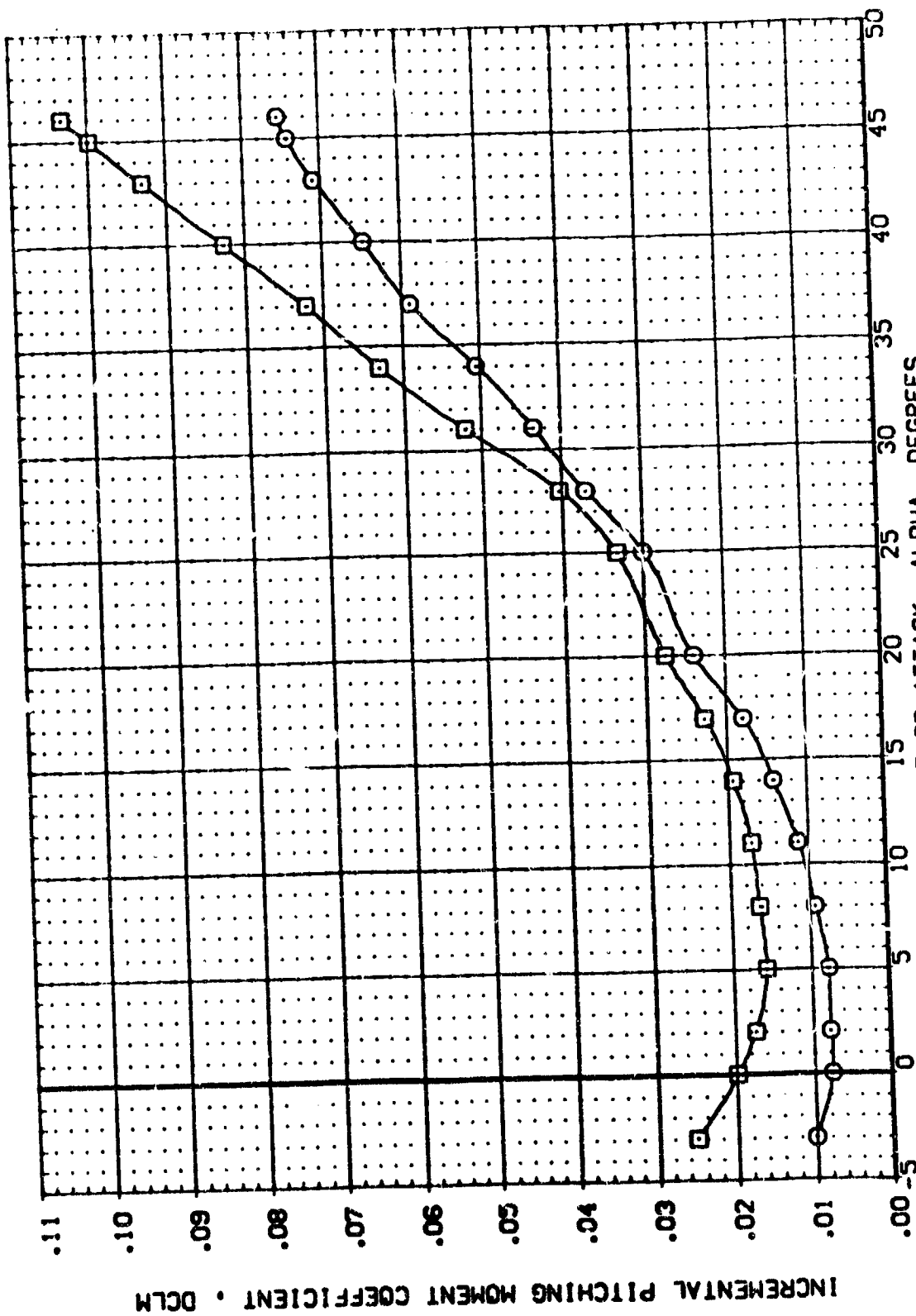


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=7.32, BOFLAP=-14.75 DEG FWD CG

(A) MACH = 7.32

REFERENCE INFORMATION	
SREF	2690.0000 SQ. FT.
AREA	474.8000
BREF	936.6800
XREF	1103.2400
YREF	0.0000
ZREF	400.0000
SCALE	.0150



FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS. $M=7.32$, $\delta O_{FLAP}=-14.75$ DEG AFT CG

$$[A]_{MACH} = 7.32$$

REFERENCE INFORMATION

2650.0000	50. FT.
474.8000	N.
936.6800	N.
1076.4800	N.
0000.0000	N.
400.0000	N.
.0150	SCALE

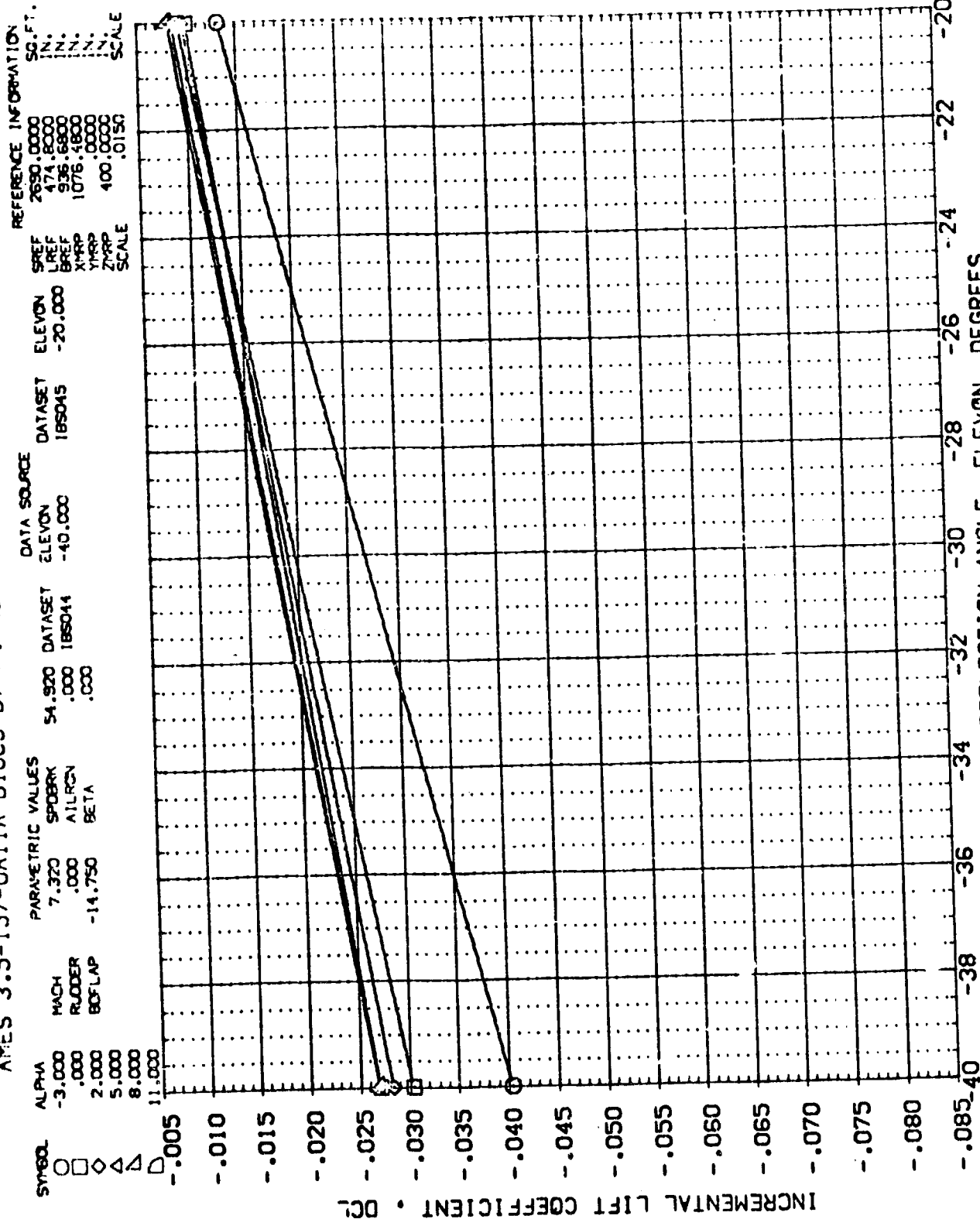


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, $M=7.32$, $\delta O_{FLAP}=-14.75$ DEG FWD CG

AMES 3.5-157-0A11A B10C5 07 F4 N8 M3 W87E18 VSR5(1BS044)

SYMBOL	PARAMETRIC VALUES				DATA SOURCE		REFERENCE INFORMATION			
	ALPHA	MACH	RJDDER	BDFLAP	SPDRK	AILRON	BE1A	SREF	LREF	BREF
○	14.000				7.320	.000	-14.750	2690.0000	474.8000	936.8600
□	17.000				.000	AILRON		1076.4800		
◇	20.000					BE1A		400.0000		
△	25.000							400.0000		
▽	28.000							400.0000		
△	31.000							400.0000		
								SCALE	SCALE	SCALE
								.0150	.0150	.0150

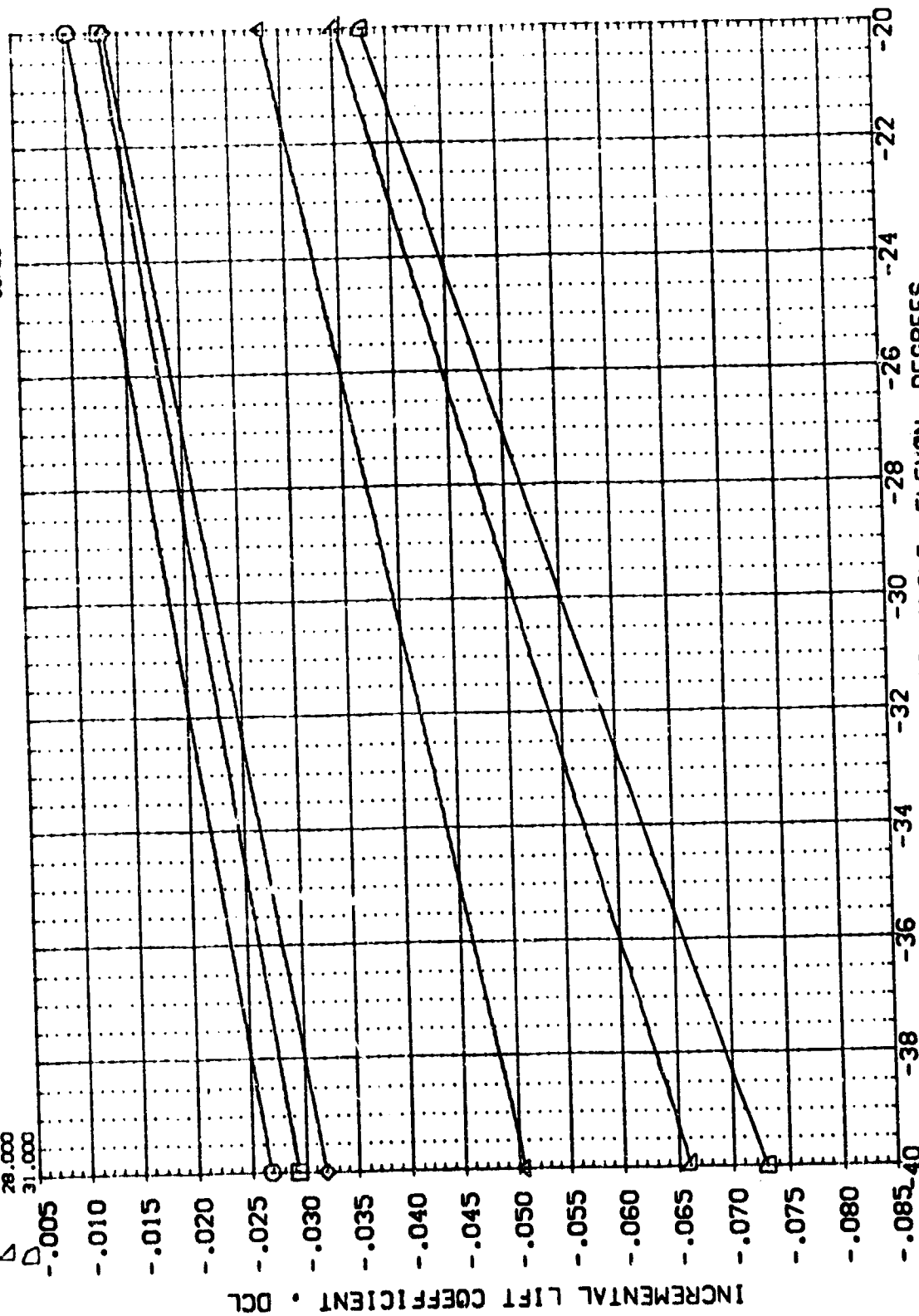


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=7.32, BDFLAP=-14.75 DEG FWD CG

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 VSR5(18S044)

SYMBOL	PARAMETRIC VALUES				DATA SOURCE		REFERENCE INFORMATION			
	ALPHA	MACH	RUDER	BDFLAP	SPDRK	ATLRN	54.920	DATASET	ELEVON	SREF
□	34.000				7.320		.000	18S044	-40.000	LREF
□	37.000				.000		.000		-20.000	BREF
△	40.000				-14.750	BETA	.000			XMRP
△	43.000						.000			YMRP
△	45.000						.000			ZMRP
△	46.000						.0150			SCALE

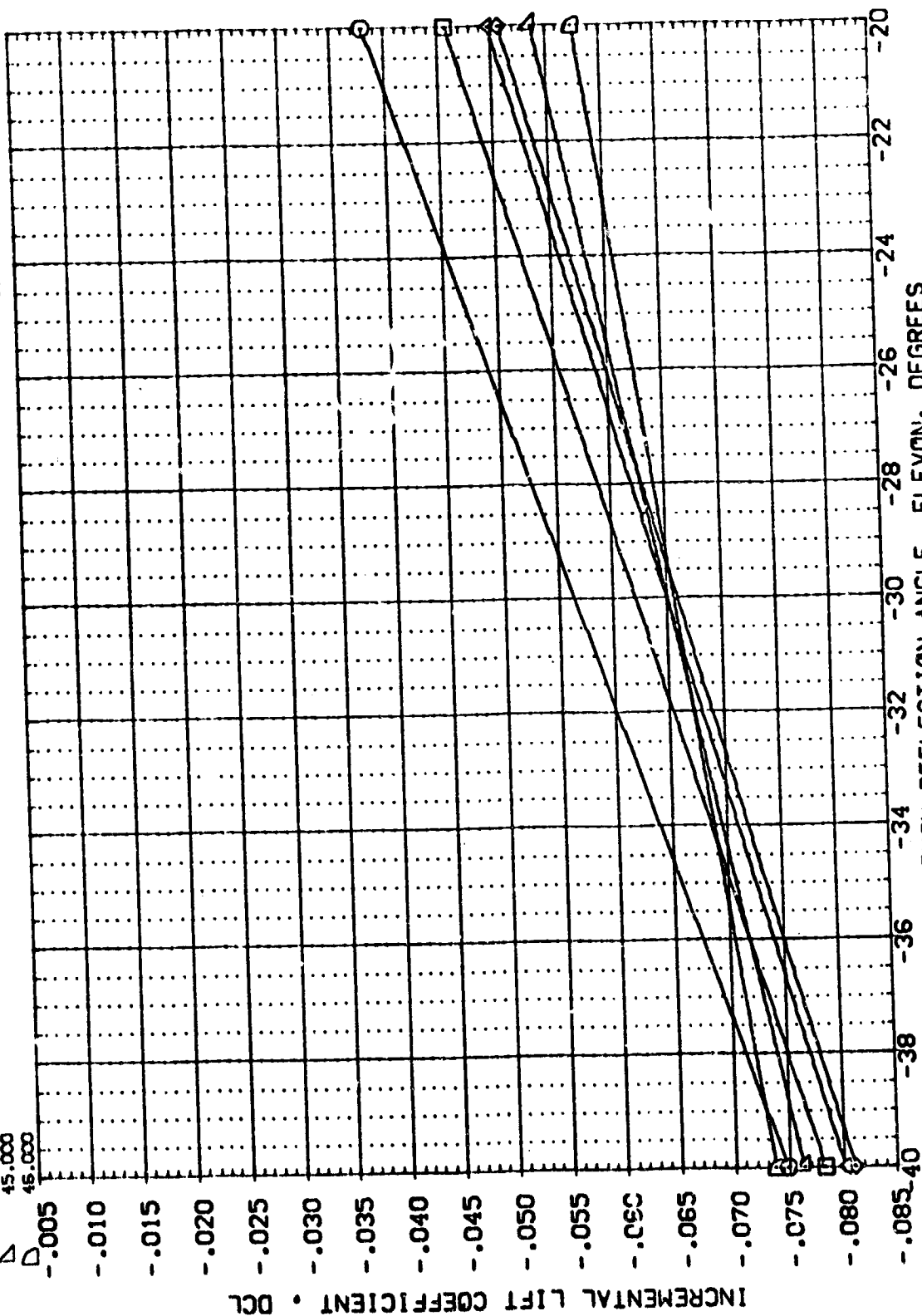


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=7.32, BDFLAP=-14.75 DEG FWD CG
ELEVON DEFLECTION ANGLE, ELEVON, DEGREES

AMES 3.5-157-0A11A 910C5 D7 F4 N8 M3 W87E18 VSR5(1BS044)

PARAMETRIC VALUES			DATA SOURCE		REFERENCE INFORMATION	
ALPHA	MACH	SPDRK	DATA SET	ELEVON	SREF	SC.FT.
-3.000	7.320	.000	54.920	1BS044	474.8000	11.000
.000	AILRON	BETA	.000	-40.000	BRF	936.6800
2.000	-14.750		.000		XPRP	1076.4800
5.000					YPRP	.0000
8.000					ZPRP	400.0000
11.000					SCALE	.0150

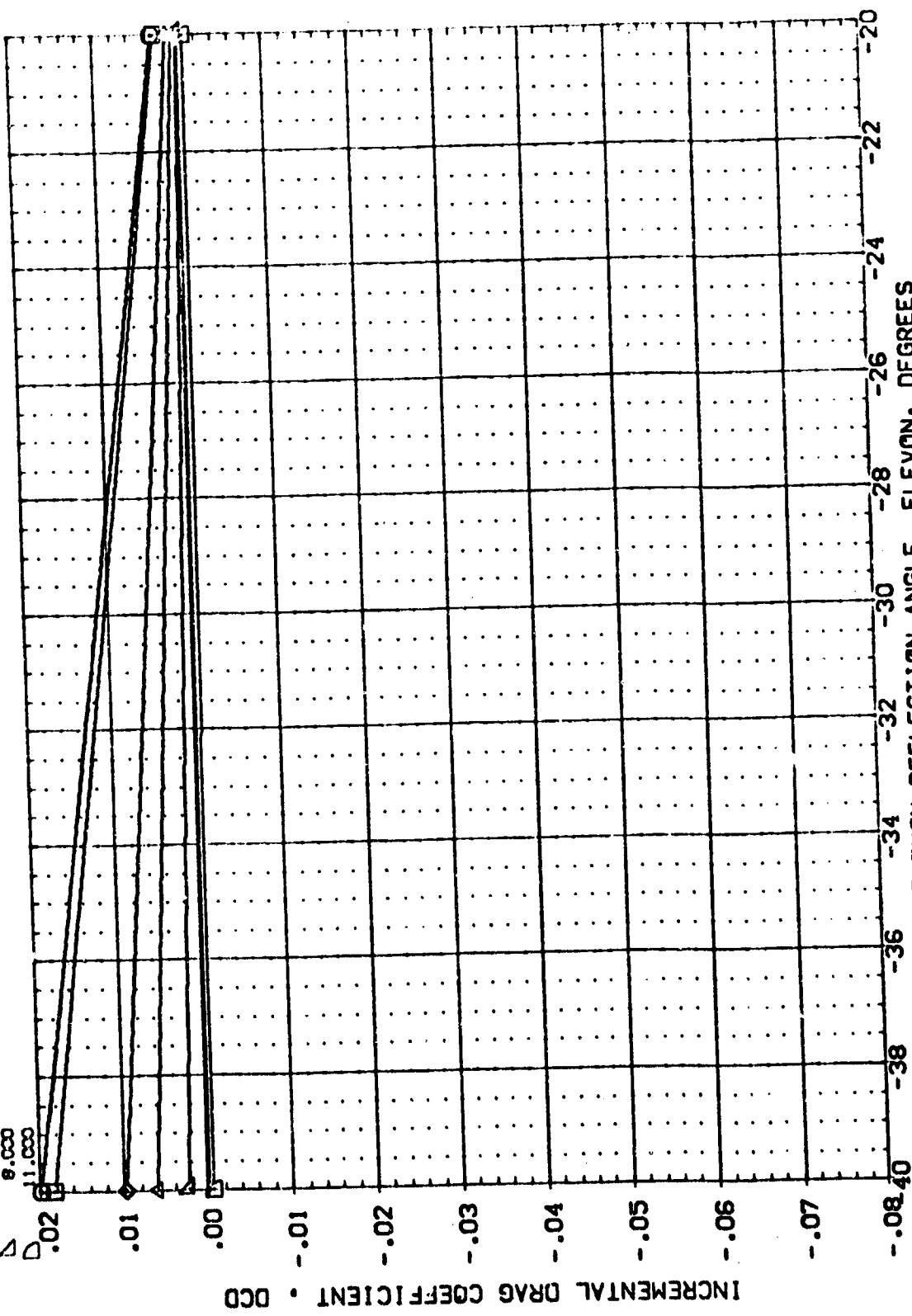


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=7.32, BOFLAP=-14.75 DEG FWD CG
ELEVON DEFLECTION ANGLE, ELEVON, DEGREES
PAGE 72

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5(18S044)

REFERENCE INFORMATION
 SQ.FT.
 2850.0000
 474.8000
 936.6800
 1076.4800
 400.0000
 .0150
 SCALE

DATA SOURCE
 DATASET 18S045
 ELEVON -20.000
 SREF
 LREF
 BREF
 XPRP
 YPRP
 ZPRP
 SCALE

PARAMETRIC VALUES
 SPDRK 54.920
 DATASET 18S044
 ELEVON -40.000
 MAC 7.320
 ATRON .000
 BETA -14.750
 BOFLAP

ALPHA
 14.000
 17.000
 20.000
 25.000
 28.000
 31.000

TYPE
 14.000
 17.000
 20.000
 25.000
 28.000
 31.000

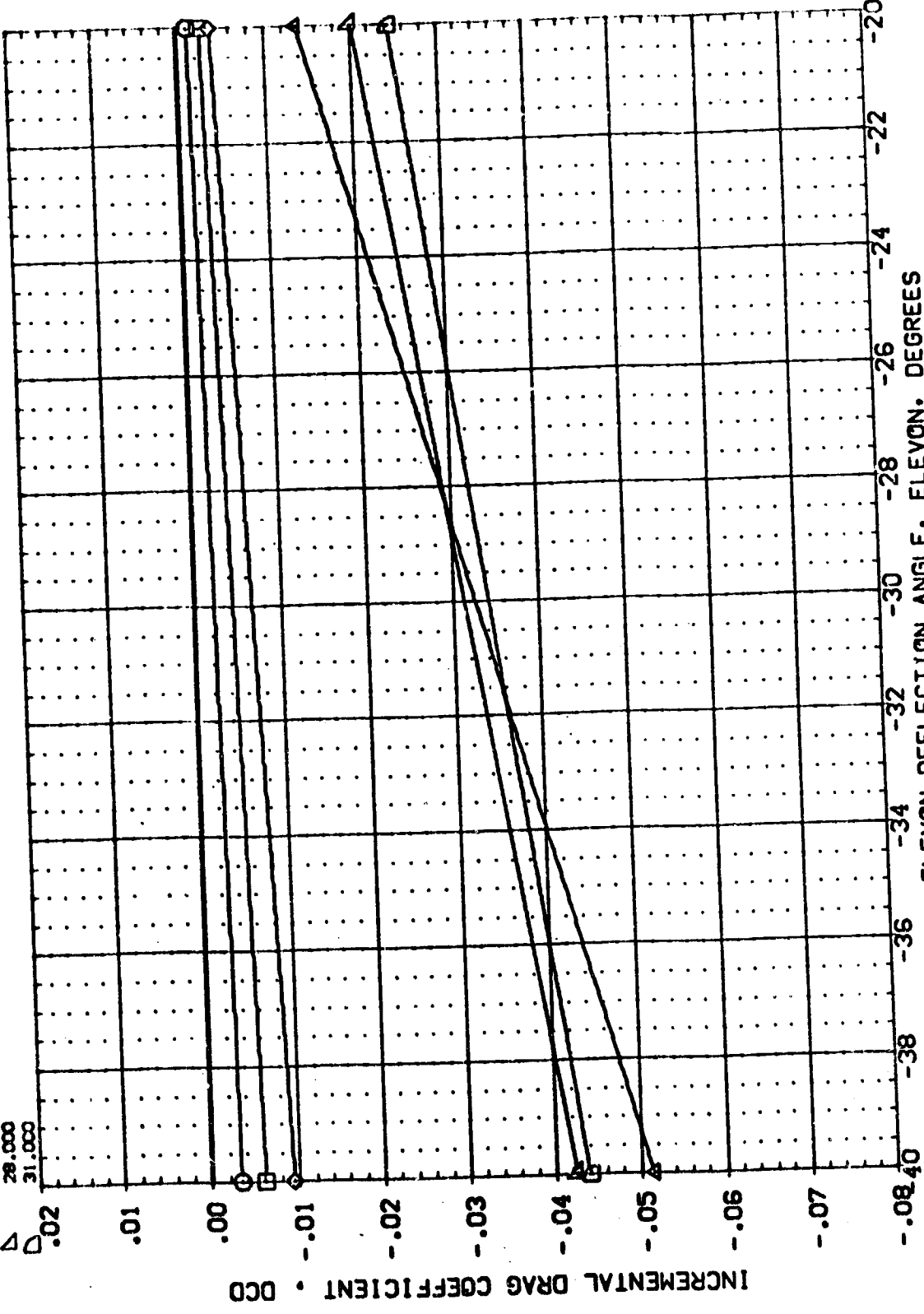


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=7.32, BOFLAP=-14.75 DEG FWD CG
 ELEVON DEFLECTION ANGLE, ELEVON, DEGREES
 PAGE 73

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5(185044)

SYMBOL	ALPHA	MACH	PARAMETRIC VALUES	DATA SOURCE	REFERENCE INFORMATION
○	34.000	7.320	SPOBRN	54.920	SREF 2690.0000
□	37.000	.000	AILRON	.000	LREF 474.8000
◇	40.000	-14.750	BETA	185044	BREF 936.6800
△	43.000			.000	XREF 1076.4800
▽	45.000			.000	YREF .0000
▽	46.000			.000	ZREF 400.0000
					SCALE .0150

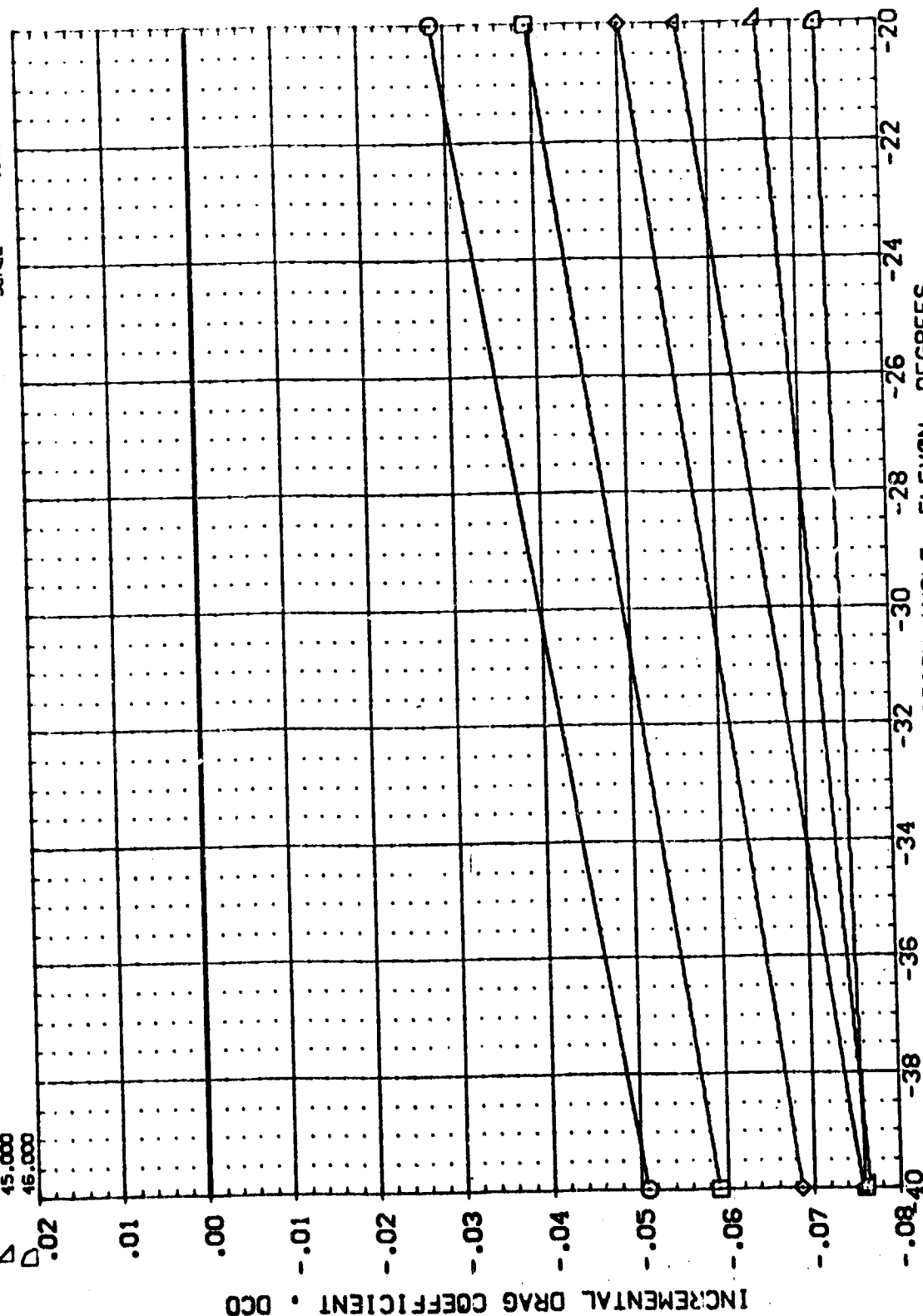


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=7.32, BDFLAP=-14.75 DEG FWD CG
ELEVON DEFLECTION ANGLE, ELEVON, DEGREES

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5(1BS044)

PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
ALPHA	MACH	54.920	ELEVON	SREF	SO. CT.
-3.000	7.320	.000	-10.000	LREF	IN.
.000	.000	.000	.000	BREF	IN.
2.000	-14.750	.000	.000	XMRP	IN.
5.000	BETA	.000	.000	YMRP	IN.
8.000		.000	.000	ZMRP	IN.
11.000		.000	.000	SCALE	SCALE

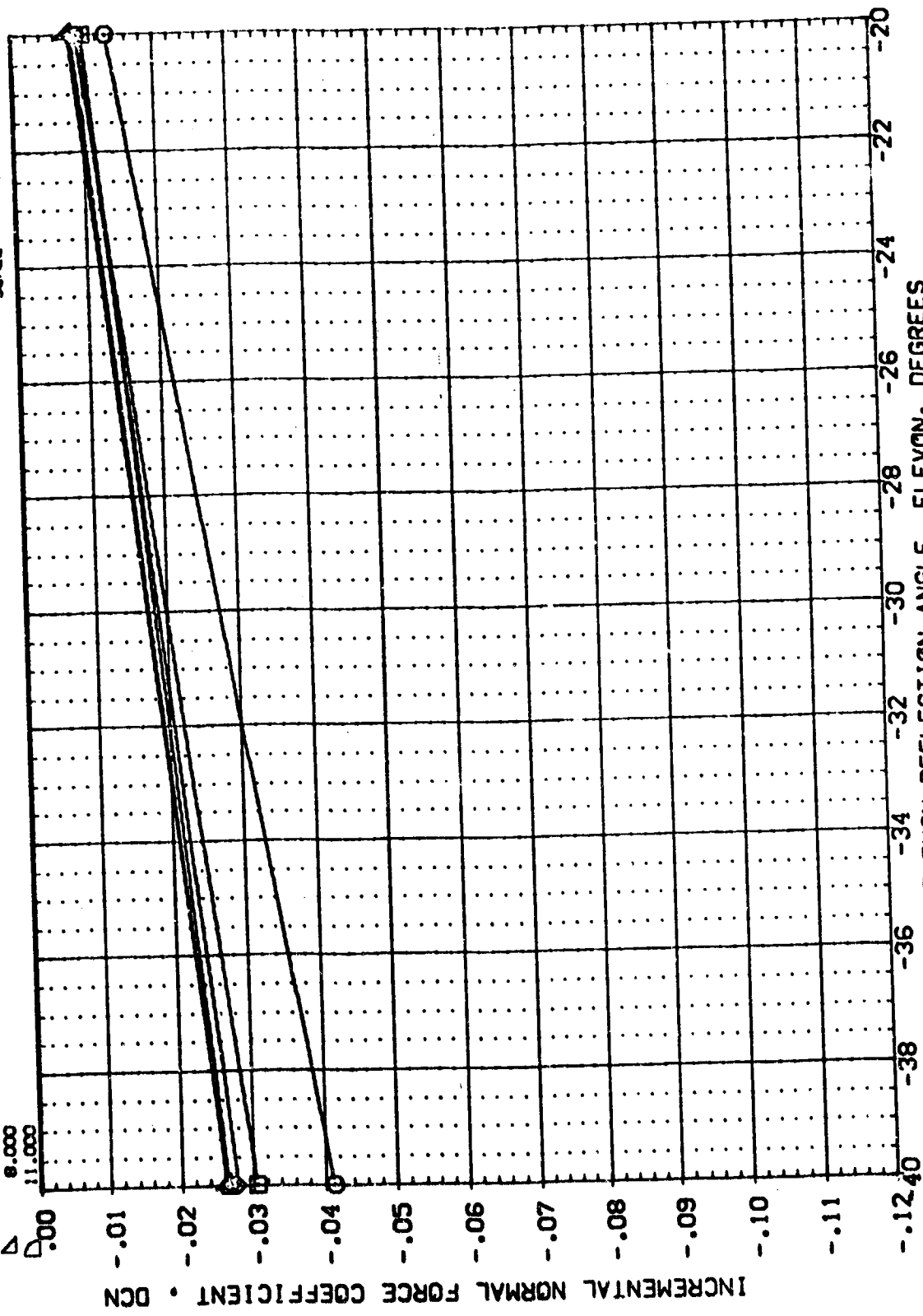


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=7.32, BOFLAP=-14.75 DEG FWD CG

AMES 3.5-157-0A11A 810C5 07 F4 N8 M3 W87E18 V5R5(18S044)

REFERENCE INFORMATION
 SQ.FT. 2630.0000
 LREF 474.8000
 BREF 936.6800
 XMRP 1076.4800
 YMRP 100.0000
 ZMRP 400.0000
 SCALE .0150

DATA SOURCE

PARAMETRIC VALUES

WACH
 KLDDER
 BOFLAP

ALPHA
 34.000
 37.000
 40.000
 43.000
 45.000
 46.000

SPOBRK
 AILRON
 BETA

7.320
 .000
 -14.750

54.920
 .000
 .000

DATA SET
 18S045

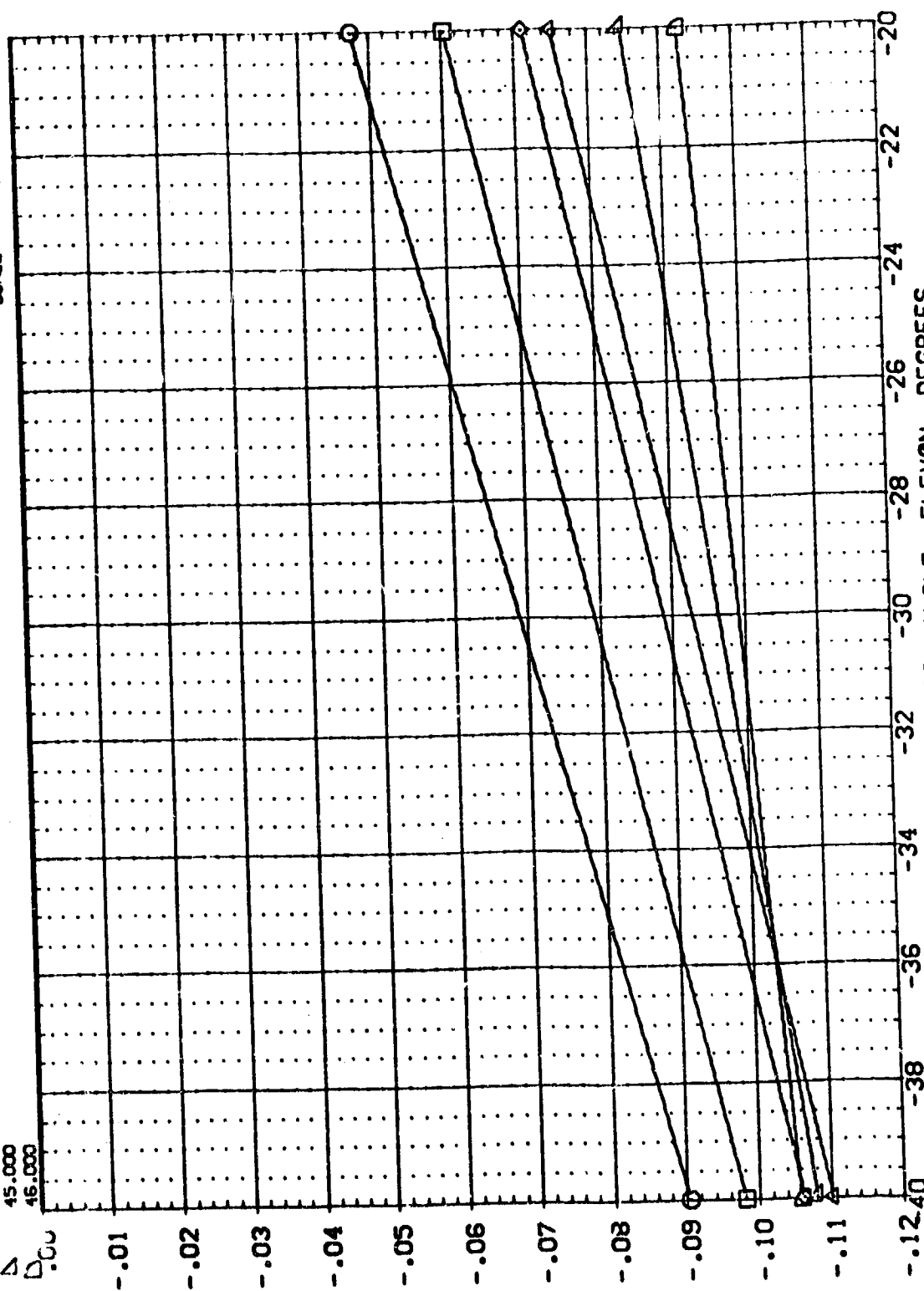
ELEVON
 -20.000

SREF
 LREF
 BREF
 XMRP
 YMRP
 ZMRP
 SCALE

2630.0000
 474.8000
 936.6800
 1076.4800
 100.0000
 400.0000
 .0150

SYMBOL
 ○
 □
 △
 ▽
 ◇

INCREMENTAL NORMAL FORCE COEFFICIENT • DCN



ELEVON DEFLECTION ANGLE, ELEVON, DEGREES

FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=7.32, BOFLAP=-14.75 DEG FWD CG

AMES 3.5-157-0A11A 810C5 D7 F4 N8 M3 W87E18 VSR5(1BS044)

AMES 3.3-137-ORBITAL BLOCK 07																			
SYMBOL	ALPHA	MACH	RUDDER	BOFLAP	PARAMETRIC VALUES			DATA SOURCE			REFERENCE INFORMATION								
					SPDRK	AILRON	BETA	54.920	DATASET	ELEVON	DATASET	ELEVON	SREF	LREF	XREF	YREF	ZREF	SCALE	
○	-3.000				7.320			.000	1BS044	-40.000		1BS04S	-20.000	2690.0000	474.8000	936.6800	1076.4800	400.0000	.0150
□	.000				.000			.000											
◇	2.000				-14.750														
△	5.000																		
▽	8.000																		
○	11.000																		

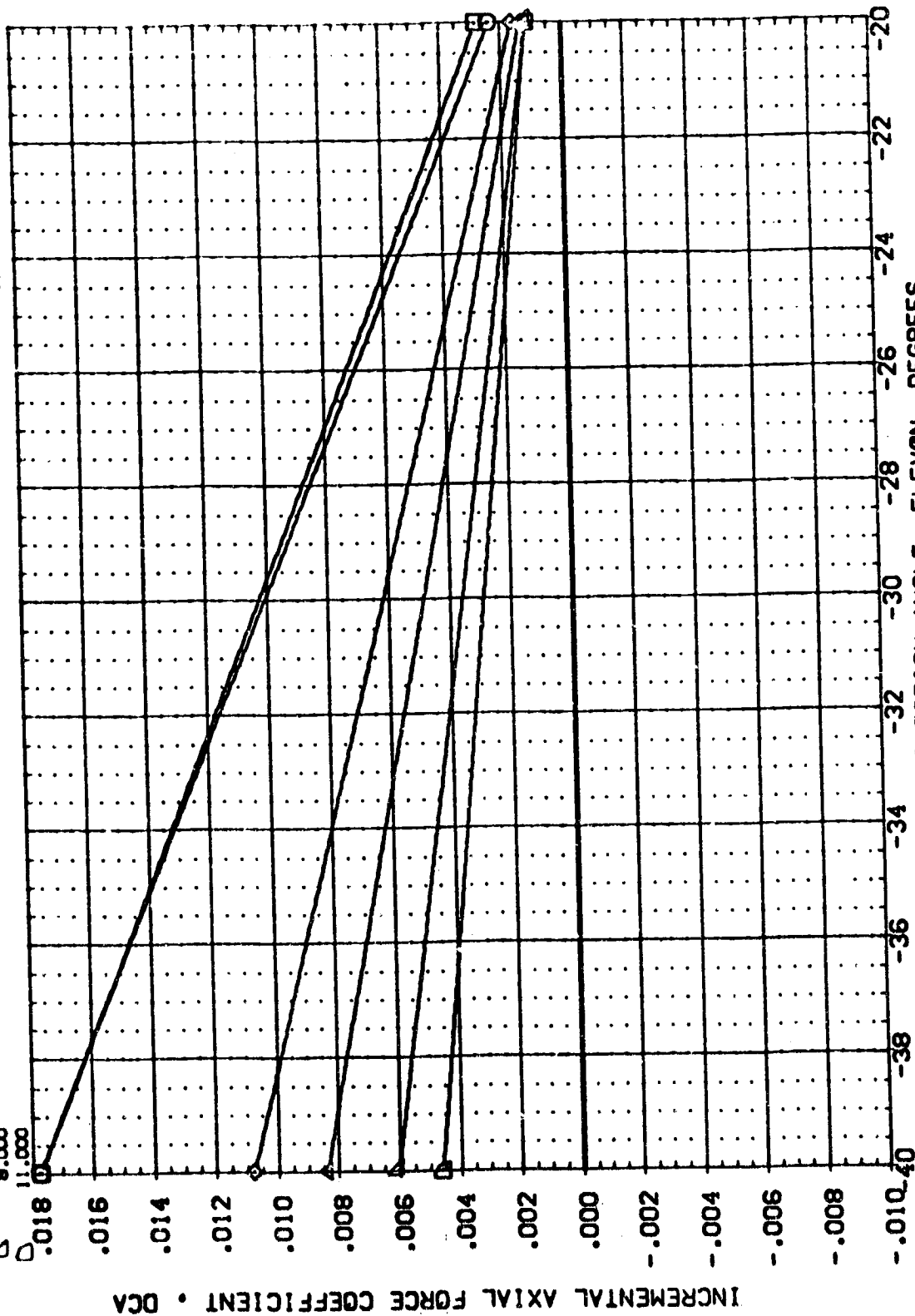


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=7.32, BOFLAP=-14.75 DEG FWD CG

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 VSR5(18S044)

REFERENCE INFORMATION
 SREF 2690.0000 SQ.FT.
 LREF 474.8000 IN.
 BREF 936.6800 IN.
 XPRP 1076.4800 IN.
 YPRP 400.0000 IN.
 ZPRP 400.0000 IN.
 SCALE .0150

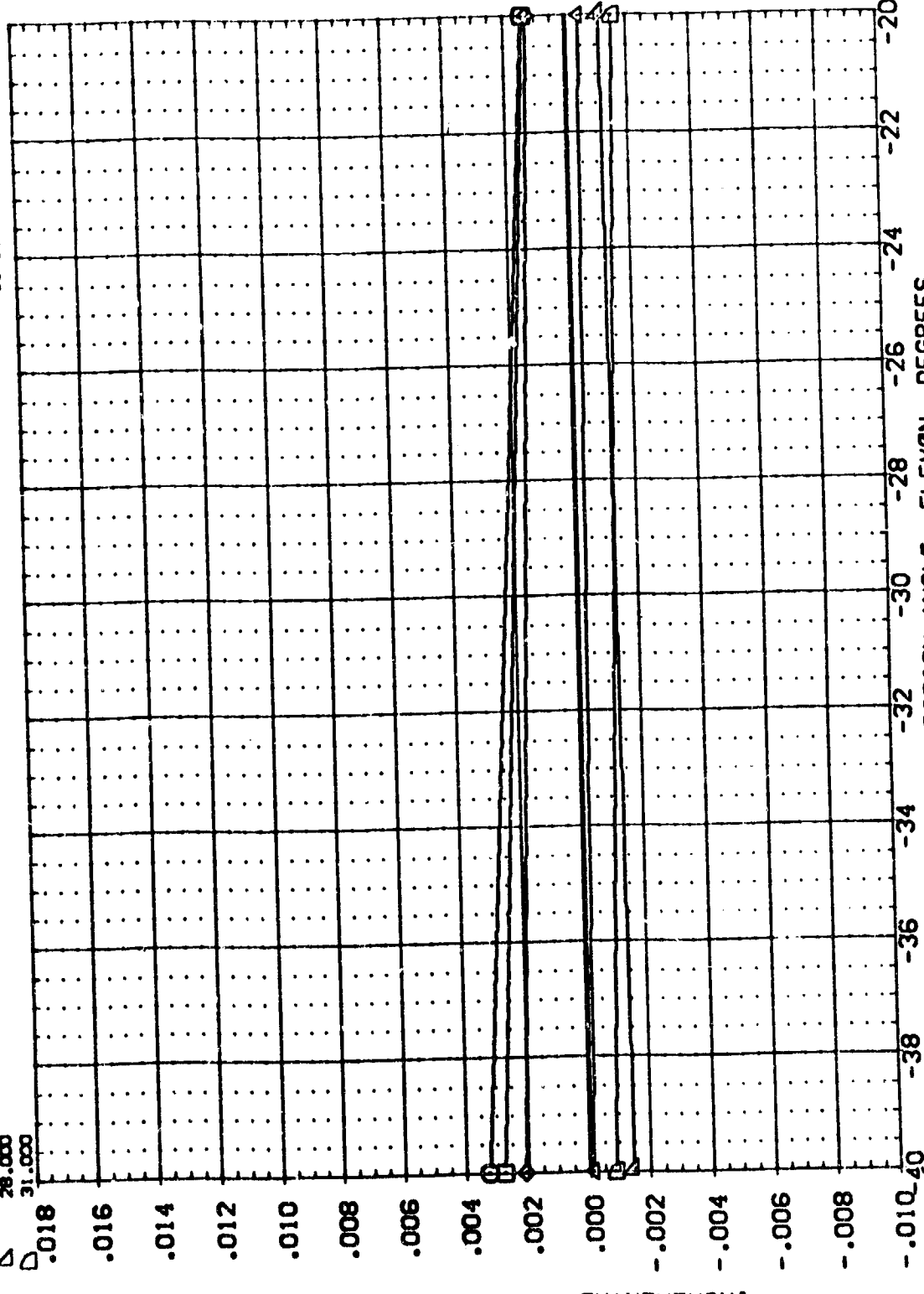
DATA SOURCE
 DATASET 18S045
 ELEVON -20.000

PARAMETRIC VALUES
 S4.520 DATASET 18S044
 .000 .000
 SPOBRK
 AILRON
 BETA

ALPHA
 14.000
 17.000
 20.000
 25.000
 28.000
 31.000

MACH
 7.320
 .000
 -14.750

RUDDER
 BOFLAP



ELEVON DEFLECTION ANGLE, ELEVON, DEGREES

FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=7.32, BOFLAP=-14.75 DEG FWD CG

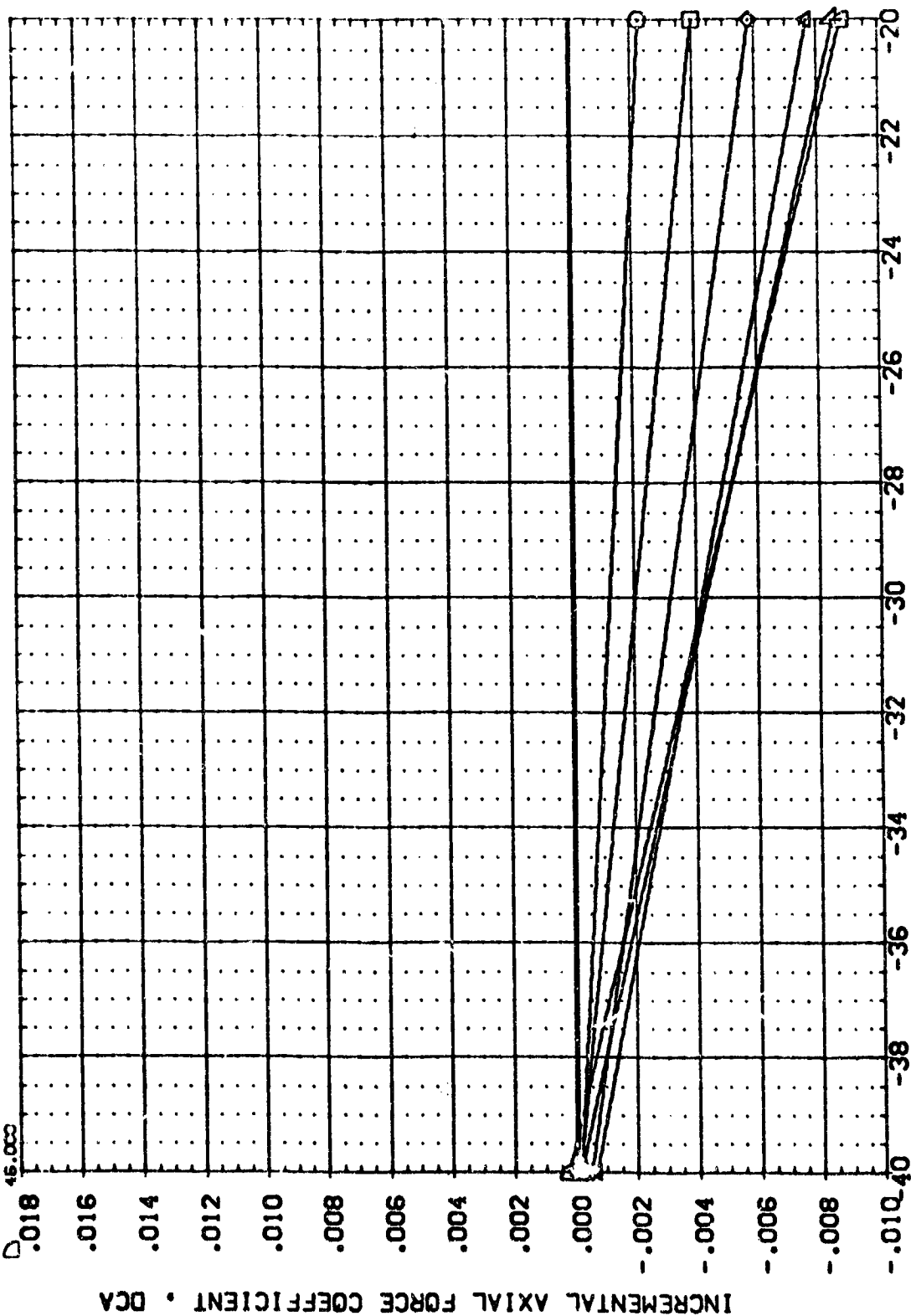
[illegible]

FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, $M=7.32$, $\delta DFLAP=-14.75$ DEG FWD CG

AMES 3.5-157-0A11A B10C5 07 F4 N8 M3 W87E18 V5R5(18S044)

PARAMETRIC VALUES				DATA SOURCE		REFERENCE INFORMATION			
ALPHA	MACH	SPDRBK	54.520	DATASET	ELEVON	SREF	2690.0000	50.FT.	
-3.000	7.320	.000	.000	185044	-40.000	LREF	474.8000	IN.	
.000	.000	.000	.000			SREF	936.6800	IN.	
2.000	-14.750	BETA				XTRP	1076.4800	IN.	
5.000						YTRP	400.0000	IN.	
8.000						ZTRP	400.0000	IN.	
11.000						SCALE	.0150	SCALE	

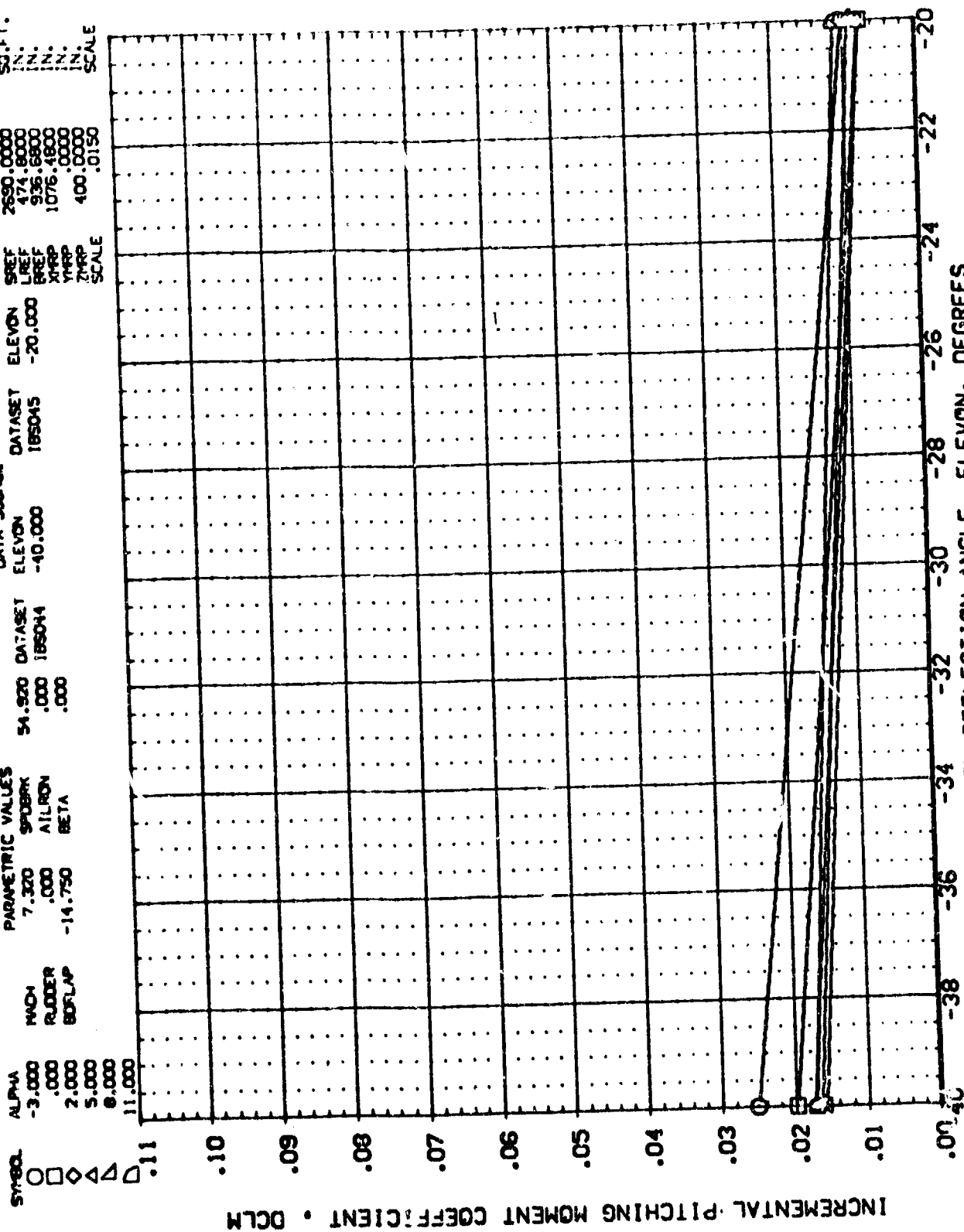


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS. M=7.32. BOFLAP=-14.75 DEG FWD CG
ELEVON DEFLECTION ANGLE. ELEVON. DEGREES

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5(1BS044)

PARAMETRIC VALUES
 MACH 7.320
 RUDDER .000
 BOFLAP -14.750
 BETA
 DATA SOURCE
 ELEVON 185045
 ELEVON -20.000
 DATASET 185045
 REF 2690.0000
 LREF 474.8000
 BREF 936.6800
 YREF 1076.4800
 ZREF .0000
 ZHREF 400.0000
 SCALE .0150

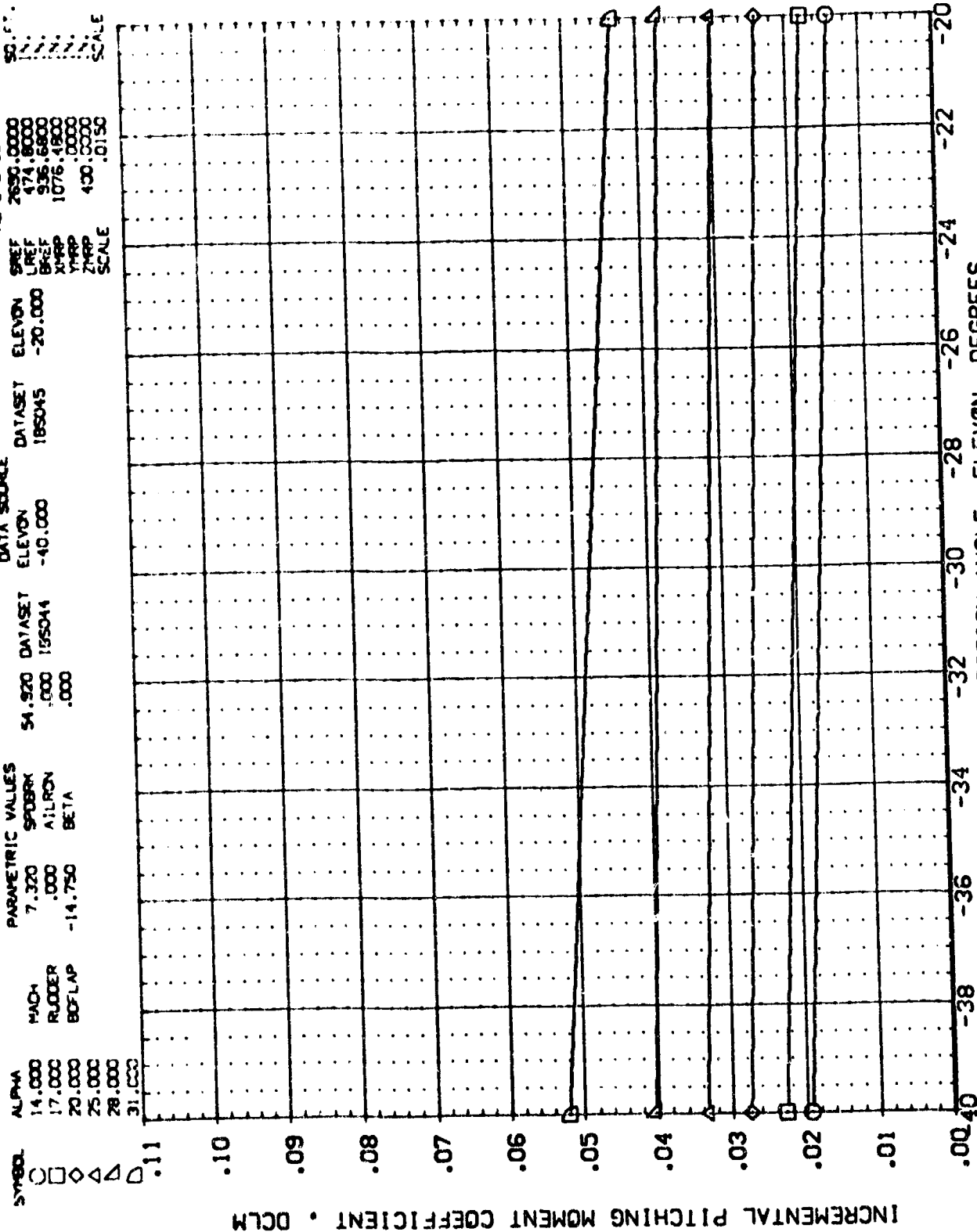


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=7.32, BOFLAP=-14.75 DEG FWD CG
 ELEVON DEFLECTION ANGLE, ELEVON, DEGREES
 PAGE 82

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AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5(1BS044)

REFERENCE INFORMATION
 SREF 2690.0000 SQ.FT.
 LREF 474.8000 IN.
 BREF 936.6800 IN.
 XTRP 1076.4800 IN.
 YTRP 1000.0000 IN.
 ZTRP 400.0000 IN.
 SCALE .0150

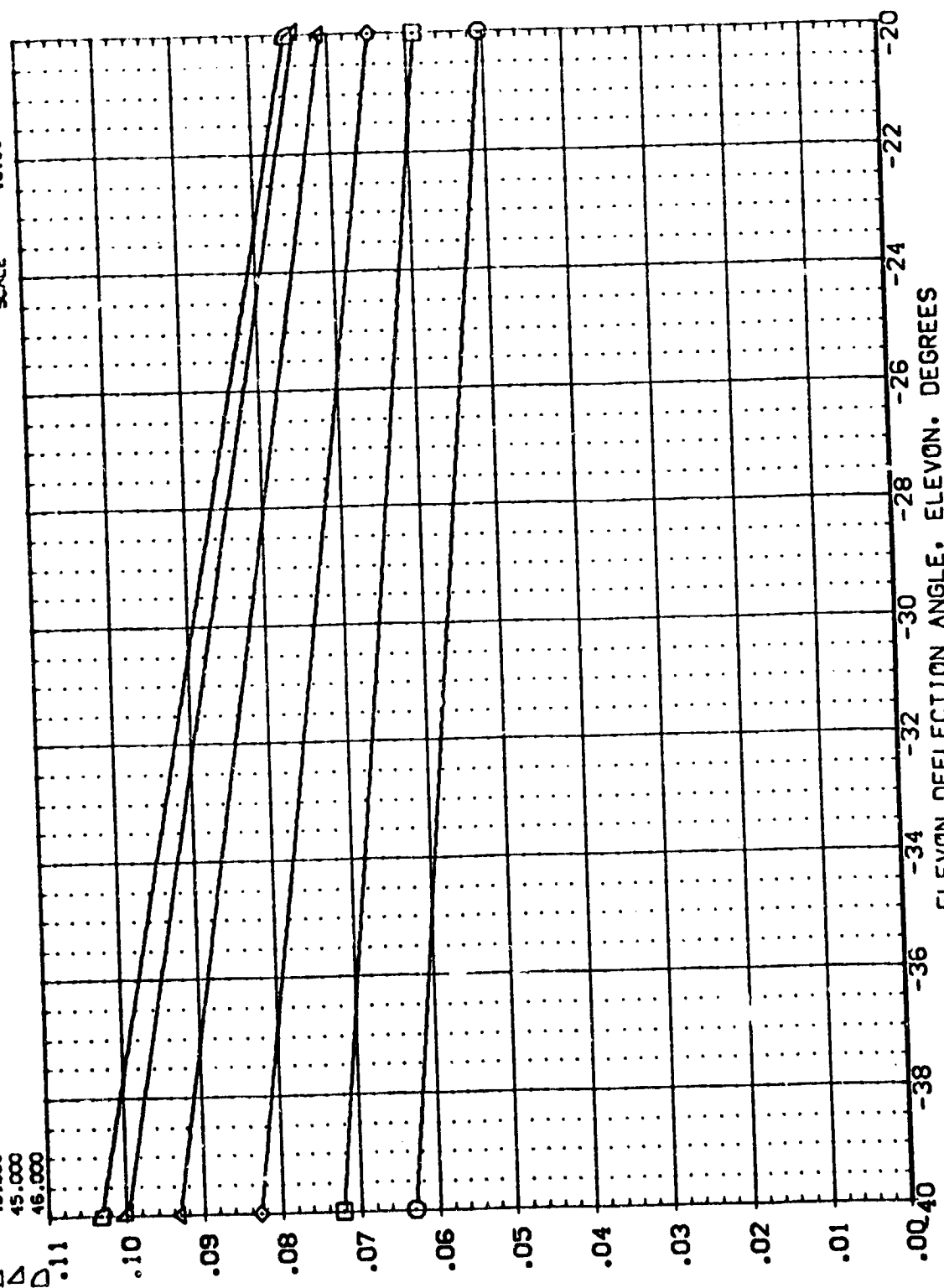
DATA SOURCE

PARAMETRIC VALUES
 SPOBRK 7.320
 AILRCN .000
 BETA -14.750

MACH
 RUDDER
 BOFLAP

ALPHA
 34.000
 37.000
 40.000
 43.000
 45.000
 46.000

SYMBOL
 ○
 □
 ◇
 △
 ▽



INCREMENTAL PITCHING MOMENT COEFFICIENT • DCLM

ELEVON DEFLECTION ANGLE, ELEVON, DEGREES

FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=7.32, BOFLAP=-14.75 DEG FWD CG

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E11 V5R5(JBS044)

PARAMETRIC VALUES		DATA SOURCE		REFERENCE INFORMATION	
ALPHA	MACH	SA.920	DATASET	SREF	2630.0000
-3.000	7.320	.000	JBS044	LREF	474.8000
.000	.000	.000	JBS045	BREF	936.0800
2.000	-14.750	.000		XMRP	1103.2400
5.000				YMRP	.0000
8.000				ZMRP	400.0000
11.000				SCALE	.0150

INCREMENTAL PITCHING MOMENT COEFFICIENT • DCLM

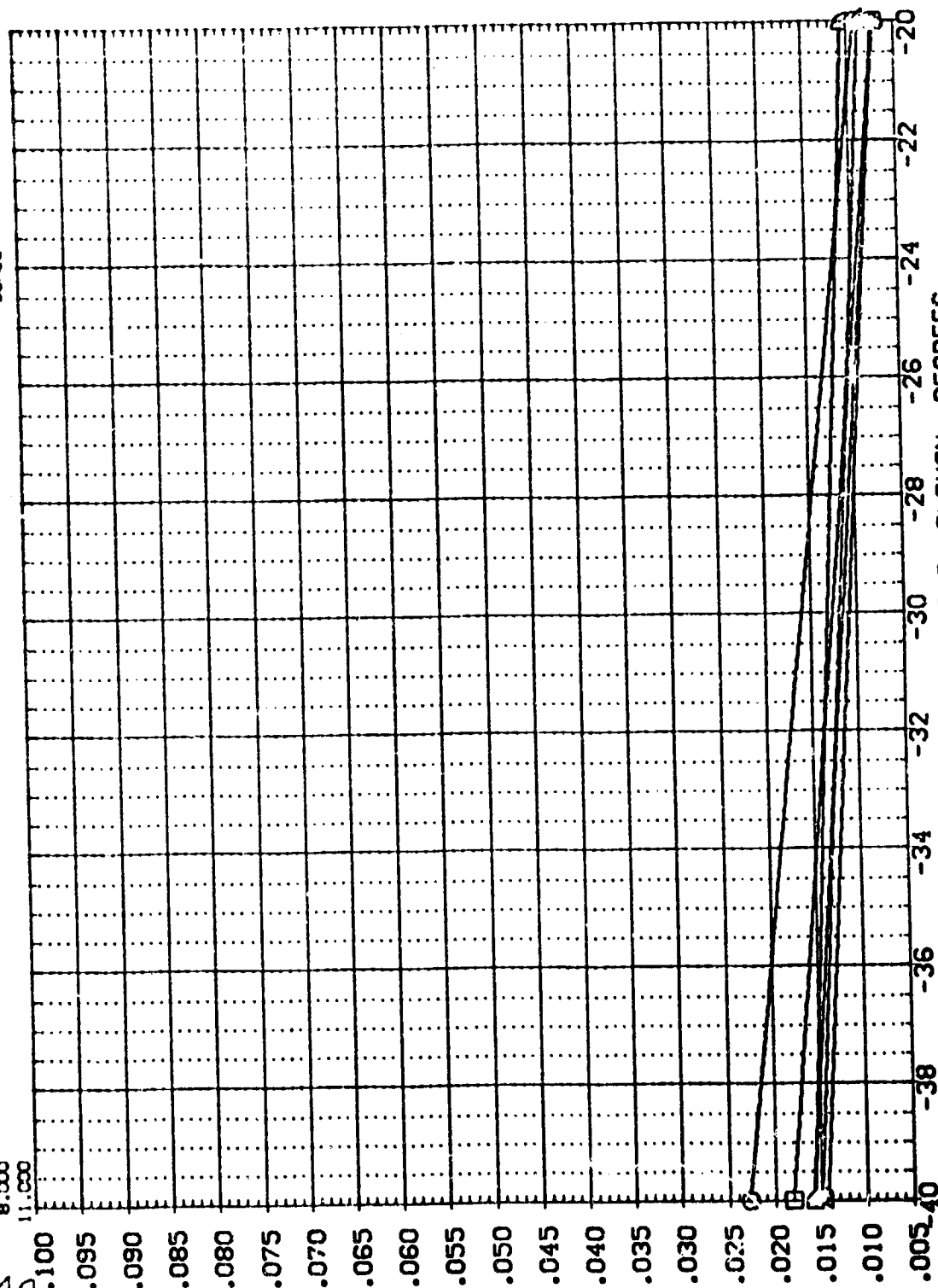


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS. M=7.32. BDFLAP=-14.75 DEG AFT CG
ELEVON DEFLECTION ANGLE. ELEVON. DEGREES

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 VSR5(JBS044)

PARAMETRIC VALUES			DATA SOURCE			REFERENCE INFORMATION		
ALPHA	MACH	SPDRK	54.920	DATASET	ELEVON	SREF	2690.0000	SO.FT.
14.000		7.320	.000	JBS044	-20.000	LREF	474.8000	IN.
17.000	RUDER	.000	.000			EREF	936.6800	IN.
20.000	BOFLAP	-14.750	.000			XTRP	1103.2400	IN.
25.000						YTRP	400.0000	IN.
28.000						ZTRP	400.0000	IN.
31.000						SCALE	.0150	SCALE

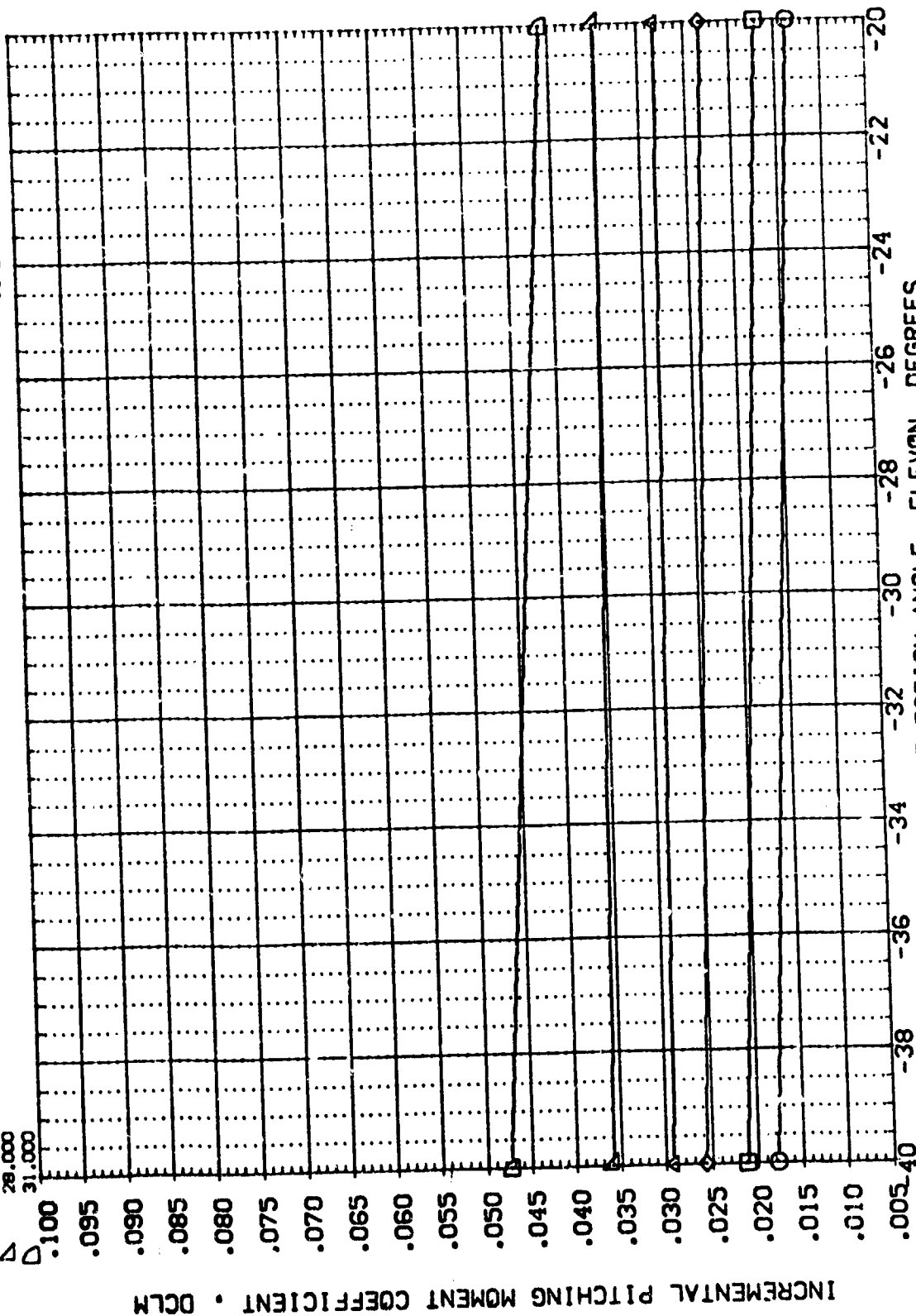


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=7.32, BOFLAP=-14.75 DEG AFT CG

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 VSR5(JBS044)

PARAMETRIC VALUES			DATA SOURCE		REFERENCE INFORMATION	
ALPHA	MACH	SPDRK	DATA SET	ELEVON	SREF	SQ.FT.
34.000	7.320	.000	54.920	-40.000	2690.0000	474.8000
37.000	RUDDER	AILRON	.000	JBS044	LRREF	9.36.6800
40.000	BDFLAP	BETA	.000		BRREF	1103.2400
43.000					XRPR	400.0000
45.000					ZRPR	400.0000
46.000					SCALE	.0150

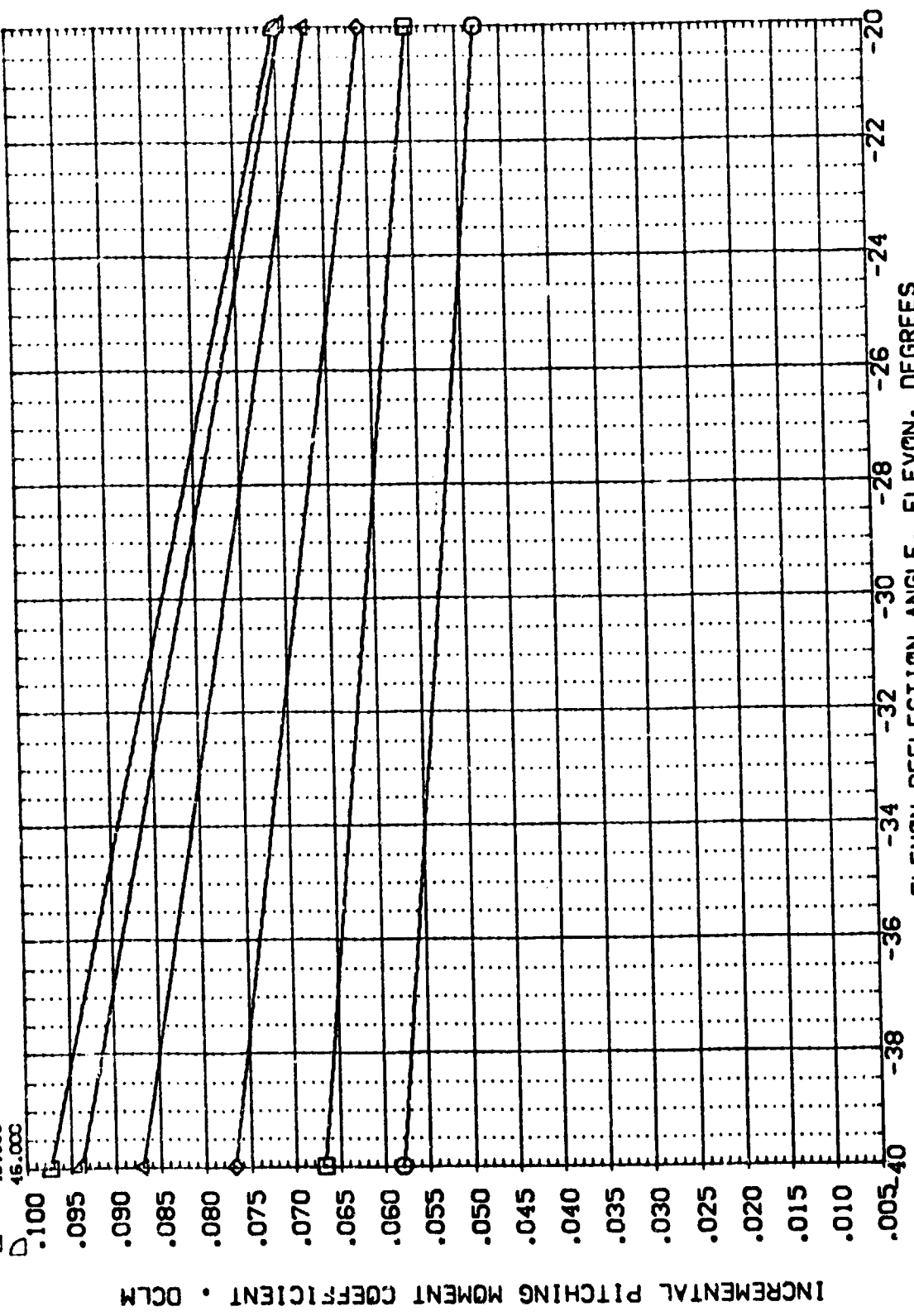


FIG. 9 INCREMENTAL EFFECT OF DEFLECTED ELEVONS, M=7.32, BDFLAP=-14.75 DEG AFT CG

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPDBRK	BOFLAP	REFERENCE INFORMATION
(R8SD40)	AVES 3.5-157-0A11A B10CS 07 F4 N8 M3 V87E18 VSRS	10.000	.000	54.920	.000	SREF 2630.0000 SQ.FT.
(R8SD42)	AVES 3.5-157-0A11A B10CS 07 F4 N8 M3 V87E18 VSRS	-20.000	.000	54.920	.000	LREF 174.8000 IN.
(R8SD41)	AVES 3.5-157-0A11A B10CS 07 F4 N8 M3 V87E18 VSRS	-40.000	.000	54.920	.000	BREF 936.6800 IN.
						XREF 1076.4800 IN.
						YREF 100.0000 IN.
						ZREF 100.0000 IN.
						SCALE .0150 IN.

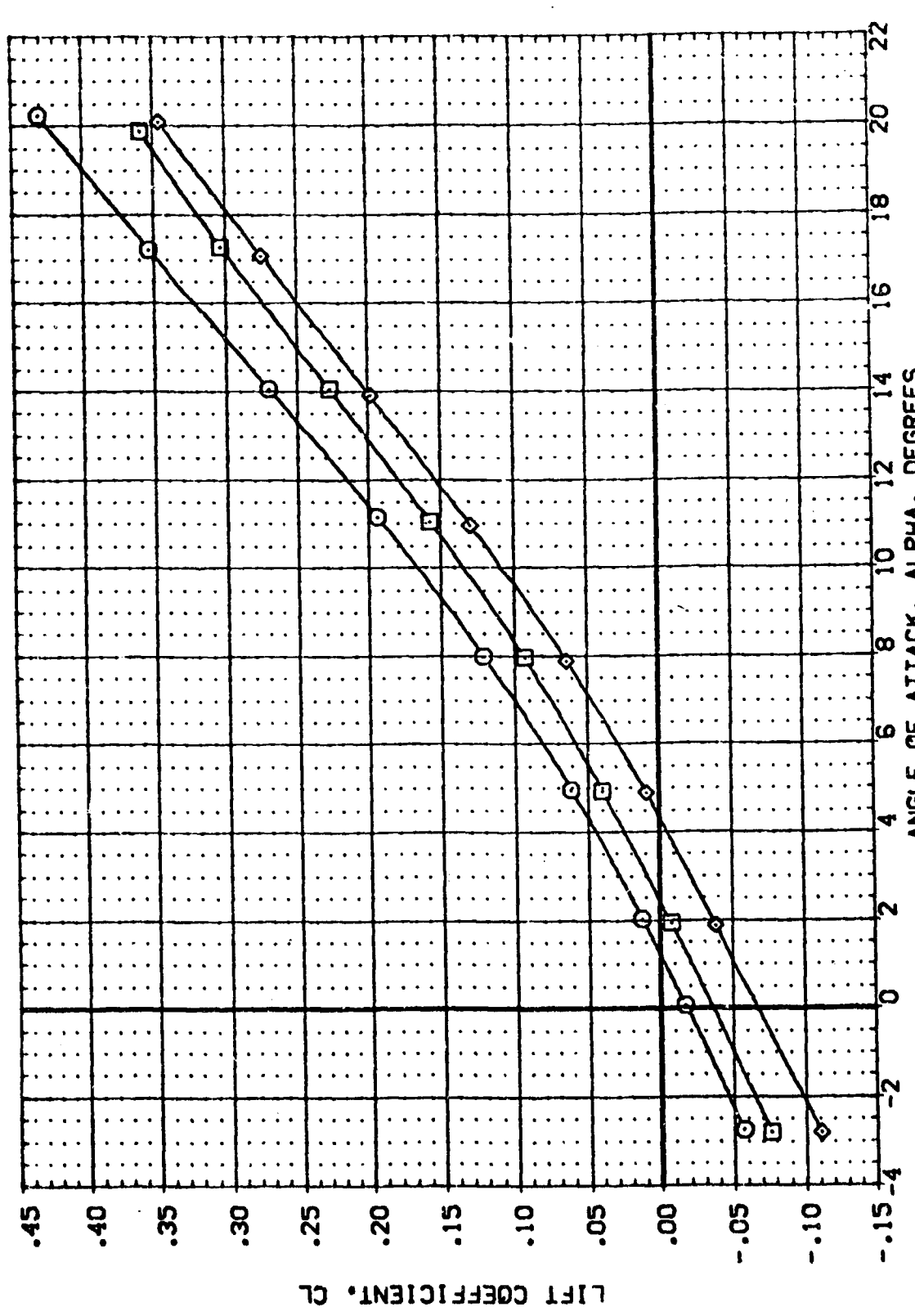


FIG. 10 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=7.32, BOFLAP=0.0 DEG. FWD CG
 (A)MACH = 7.32

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILLON	SPDRBK	BDFLAP	REFERENCE INFORMATION
(RBS010)	AVES 3.5-157-0A11A B10CS D7 F4 N8 H3 V87E18 V59S	10.000	.000	54.920	.000	SREF 2690.0000 SQ.FT.
(RBS012)	AVES 3.5-157-0A11A B10CS D7 F4 N8 H3 V87E18 V59S	-20.000	.000	54.920	.000	LREF 474.8000 IN.
(RBS014)	AVES 3.5-157-0A11A B10CS D7 F4 N8 H3 V87E18 V59S	-40.000	.000	54.920	.000	BREF 936.8800 IN.
						XREF 1076.4800 IN.
						YREF 400.0000 IN.
						ZREF 400.0000 IN.
						SCALE .0150

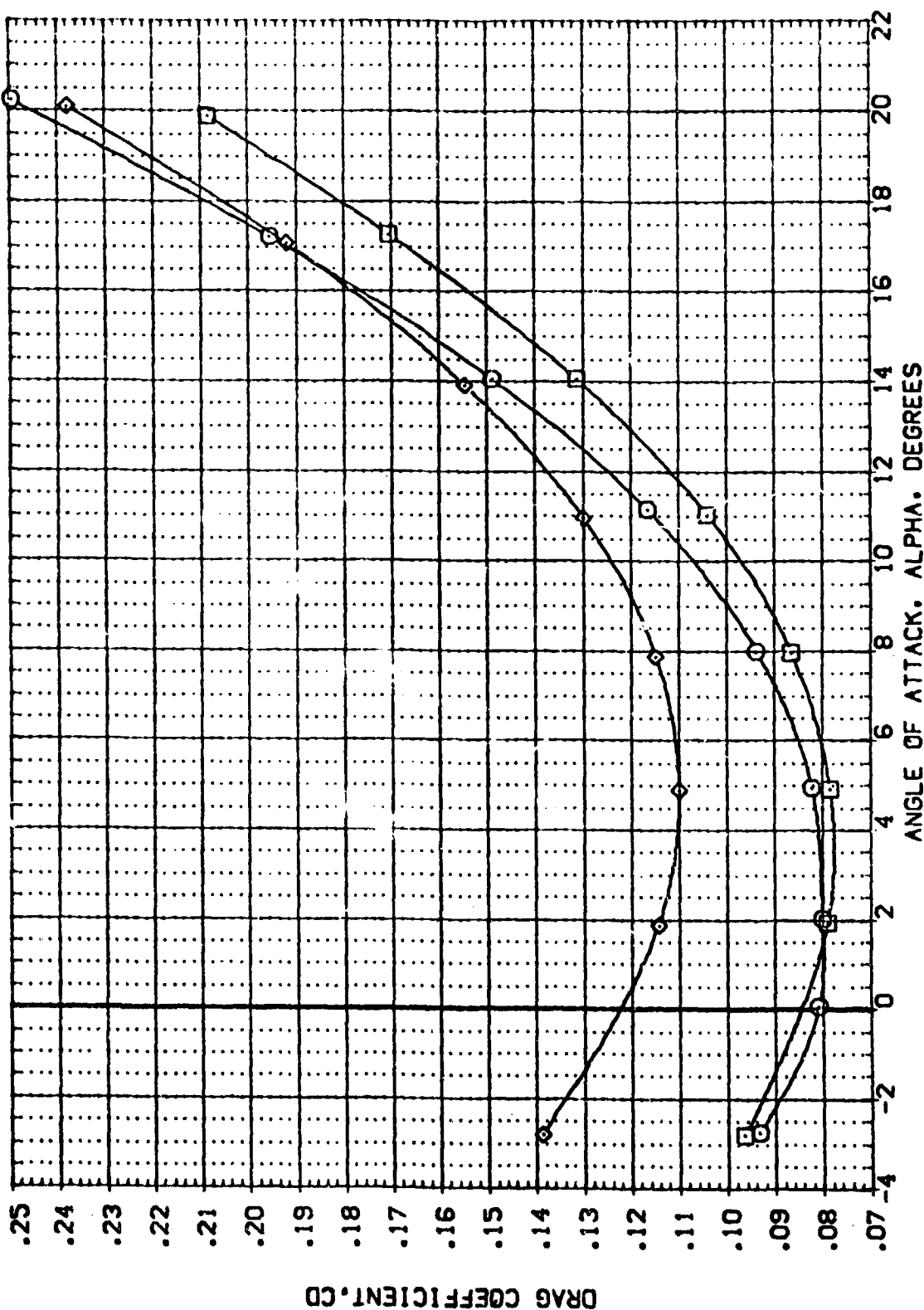


FIG. 10 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=7.32, BDFLAP=0.0 DEG. FWD CG

(A)MACH = 7.32

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPOILER	BDFLAP	REFERENCE INFORMATION
(R88040)	AVES 3.5-157-DA11A B10CS D7 F4 N8 M3 V87E18 V5MS 10.000	.000	.000	54.920	.000	SREF 2690.0000
(R88042)	AVES 3.5-157-DA11A B10CS D7 F4 N8 M3 V87E18 V5MS -20.000	.000	.000	54.920	.000	LREF 474.8000
(R88041)	AVES 3.5-157-DA11A B10CS D7 F4 N8 M3 V87E18 V5MS -40.000	.000	.000	54.920	.000	BREF 936.8000
						XTRP 1076.0000
						YTRP .0000
						ZTRP 400.0000
						SCALE .0150

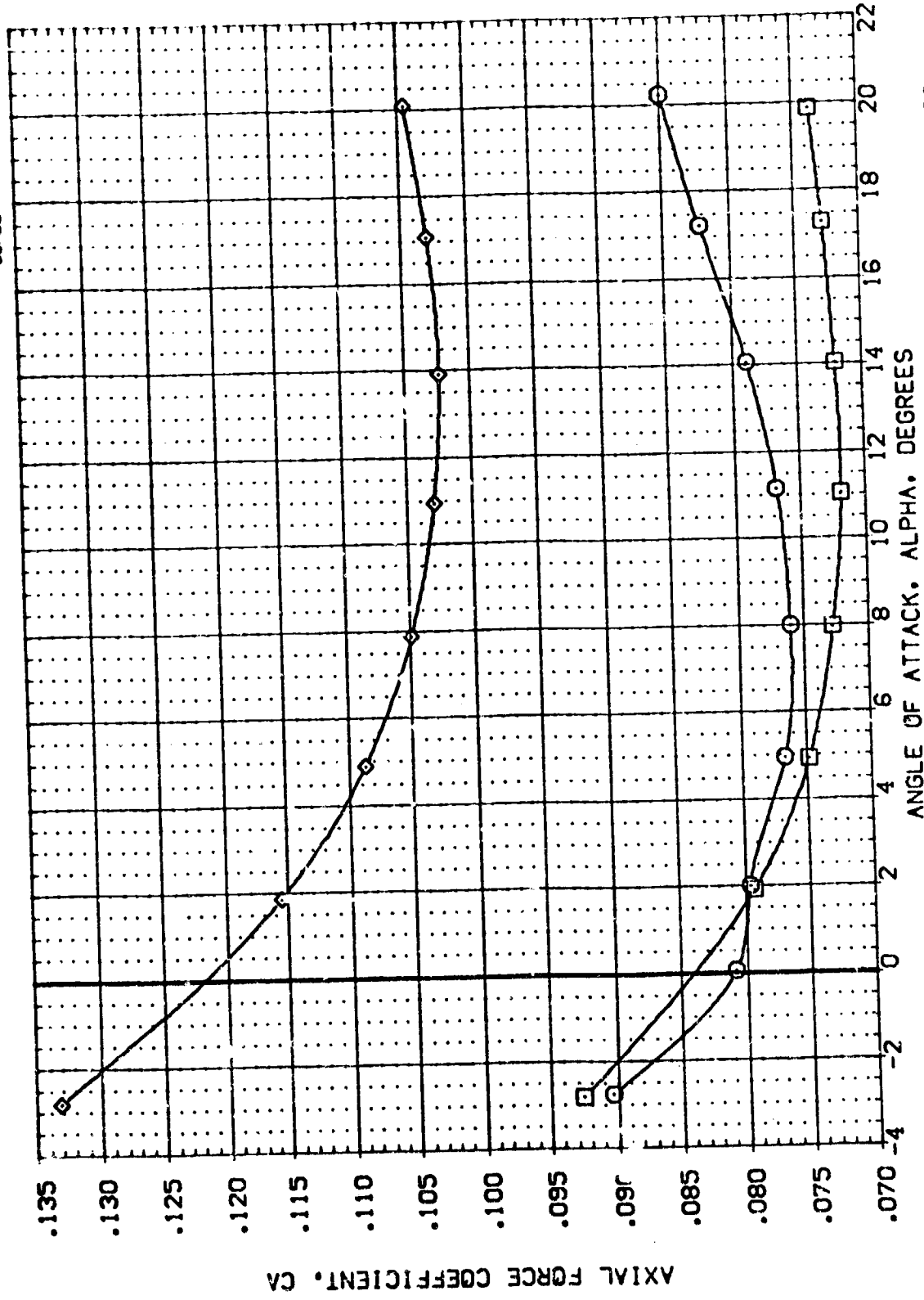


FIG. 10 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=7.32, BDFLAP=0.0 DEG. FWD CG

(A)MACH = 7.32

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPDBRK	BD FLAP	REFERENCE INFORMATION
(RBS0410)	AMES 3.5-157-0A11A B100S D7 F4 N8 M3 V87E18 V5RS	10.000	.000	54.920	.000	SREF 2690.0000 SQ.FT.
(RBS0412)	AMES 3.5-157-0A11A B100S D7 F4 N8 M3 V87E18 V5RS	-20.000	.000	54.920	.000	LREF 474.8000 IN.
(RBS0411)	AMES 3.5-157-0A11A B100S D7 F4 N8 M3 V87E18 V5RS	-40.000	.000	54.920	.000	BREF 936.8800 IN.
						XMRP 1076.4800 IN.
						VMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0150

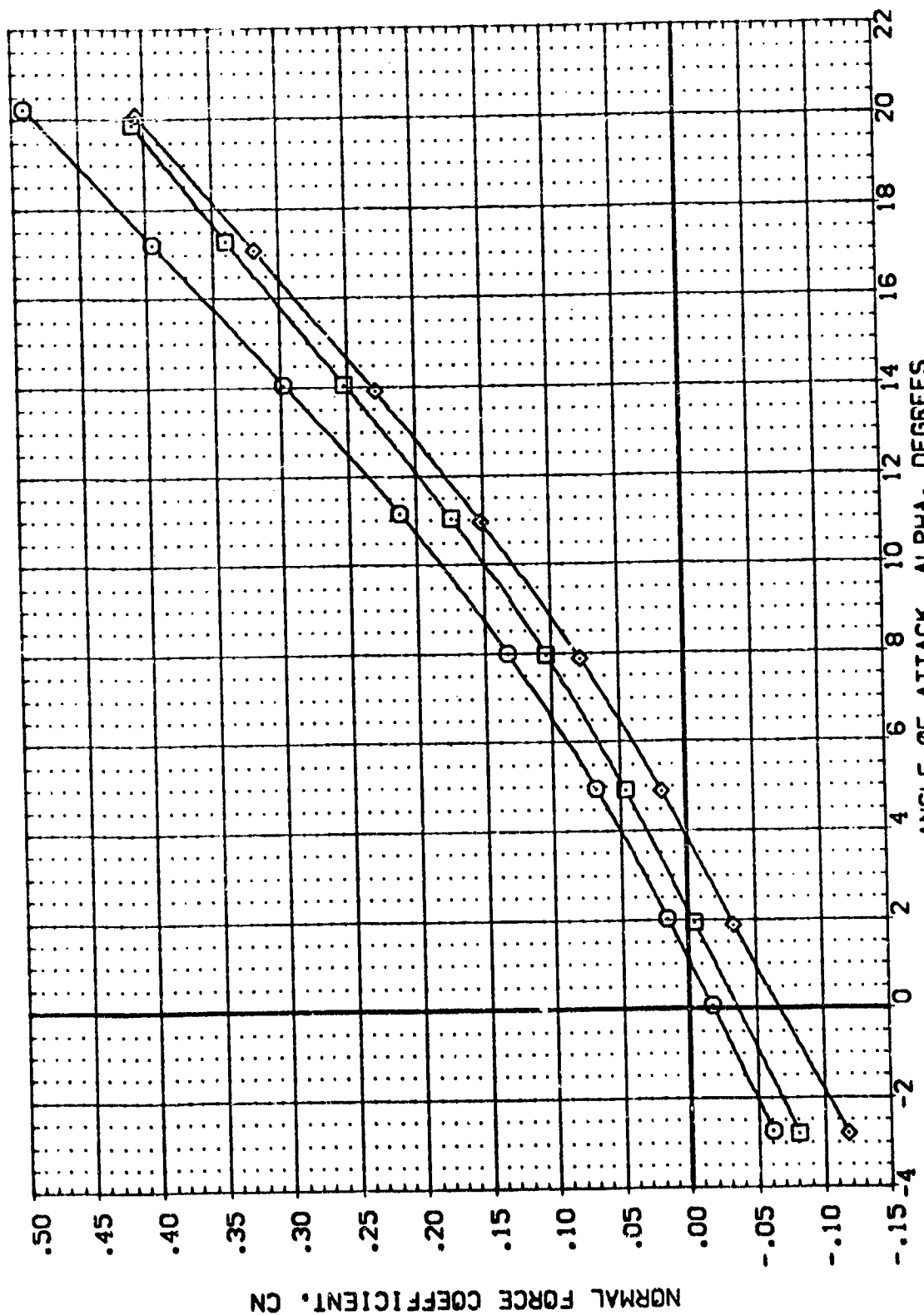


FIG. 10 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=7.32, BD FLAP=0.0 DEG. FWD CG

(A) MACH = 7.32

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPD BRK	BO FLAP	REFERENCE INFORMATION
(RBS040)	AMES 3-5-157-0A11A B10CS D7 F4 N8 M3 V87E18 VSR5	10.000	.000	54.920	.000	SREF 2630.0000 SQ.FT.
(RBS041)	AMES 3-5-157-0A11A B10CS D7 F4 N8 M3 V87E18 VSR5	-20.000	.000	54.920	.000	LREF 474.8000 IN.
(RBS042)	AMES 3-5-157-0A11A B10CS D7 F4 N8 M3 V87E18 VSR5	-40.000	.000	54.920	.000	BREF 936.6800 IN.
(RBS043)	AMES 3-5-157-0A11A B10CS D7 F4 N8 M3 V87E18 VSR5	-40.000	.000	54.920	.000	YMRP 1076.4800 IN.
(RBS044)	AMES 3-5-157-0A11A B10CS D7 F4 N8 M3 V87E18 VSR5	-40.000	.000	54.920	.000	ZMRP 400.0000 IN.
(RBS045)	AMES 3-5-157-0A11A B10CS D7 F4 N8 M3 V87E18 VSR5	-40.000	.000	54.920	.000	SCALE .0153

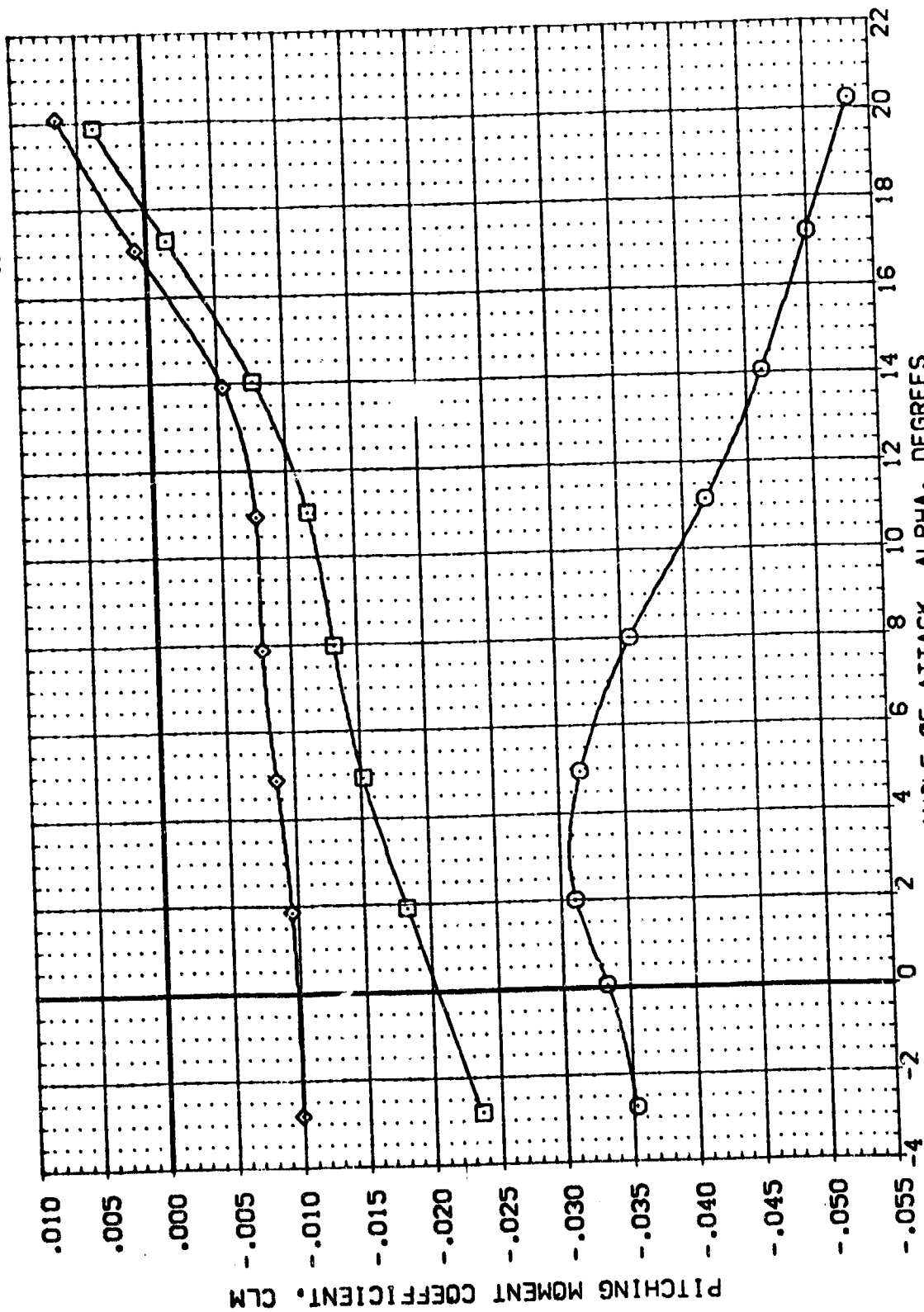


FIG. 10 TOTAL VEHICLE WITH DEFLECTED ELEVONS. M=7.32, BO FLAP=0.0 DEG. FWD CG

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPDBRK	BDFLAP	REFERENCE INFORMATION
(BBS040)	AMES 3.5-157-0A11A B10CS D7 F4 N8 M3	10.000	.000	54.920	.000	SREF 2690.0000 SQ.FT.
(BBS041)	AMES 3.5-157-0A11A B10CS D7 F4 N8 M3	-20.000	.000	54.920	.000	LREF 174.8000 IN.
(BBS042)	AMES 3.5-157-0A11A B10CS D7 F4 N8 M3	-40.000	.000	54.920	.000	BREF 936.6800 IN.
(BBS041)	AMES 3.5-157-0A11A B10CS D7 F4 N8 M3					XREF 1103.2400 IN.
						YREF .0000 IN.
						ZREF 100.0000 IN.
						SCALE .0150

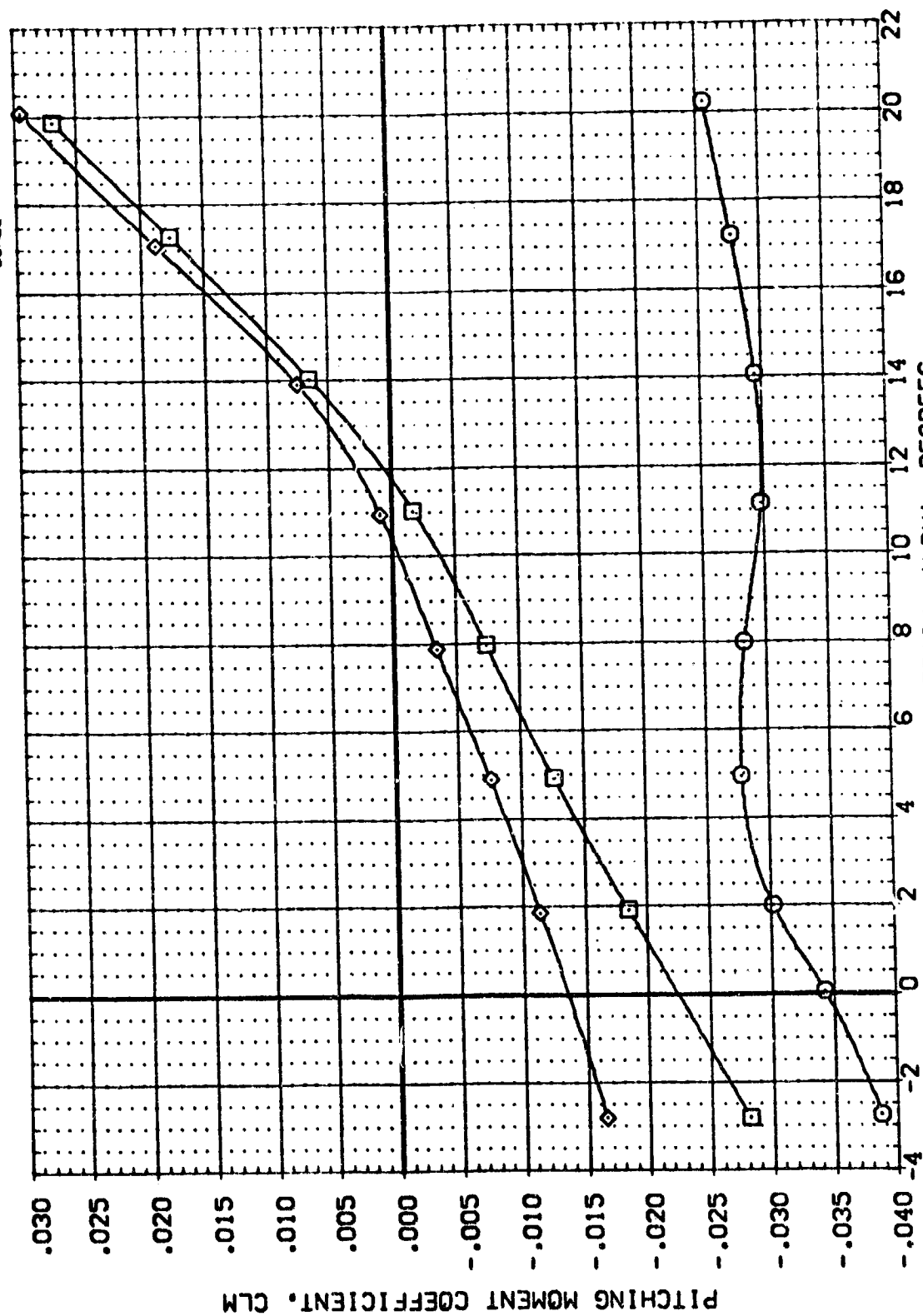


FIG. 10 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=7.32, BDFLAP=0.0 DEG. AFT CG

(A)MACH = 7.32

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AIRLON	SPDRBK	BDFLAP	REFERENCE INFORMATION
(RBS041)	AVES 3.5-157-0A11A B10CS 07 F4 N8 M3 V87E18 V59S	10.000	.000	54.920	.000	SIZE 2690.0000 SQ.FT.
(RBS042)	AVES 3.5-157-0A11A B10CS 07 F4 N8 M3 V87E18 V59S	-20.000	.000	54.920	.000	LREF 474.8000 IN.
(RBS041)	AVES 3.5-157-0A11A B10CS 07 F4 N8 M3 V87E18 V59S	-40.000	.000	54.920	.000	BREF 536.6000 IN.
						XMRP 1076.4800 IN.
						YMRP 0200 IN.
						ZMRP 400.0000 IN.
						SCALE .0150

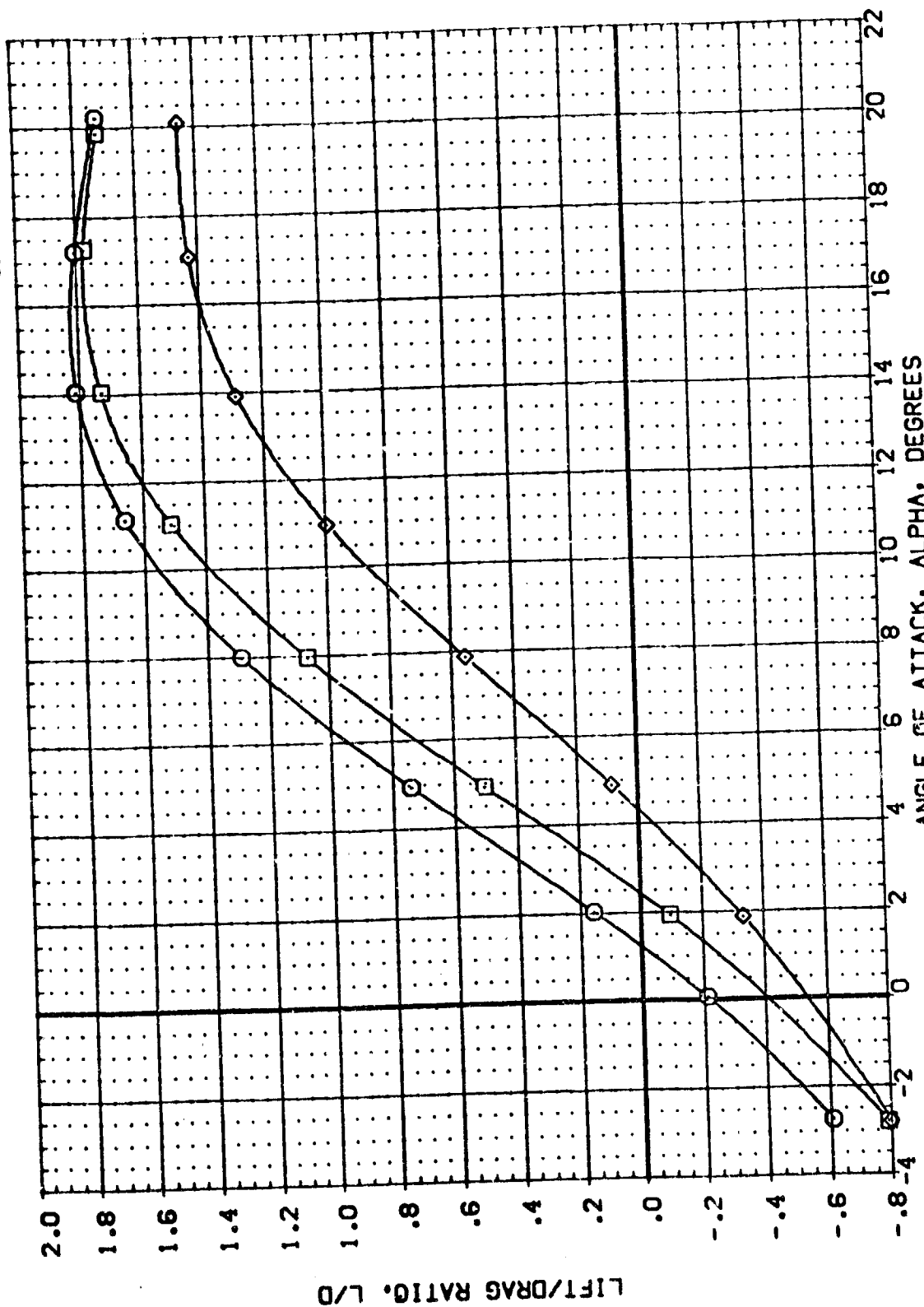


FIG. 10 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=7.32, BDFLAP=0.0 DEG. FWD CG

(A)MACH = 7.32

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPDRBK	BDFLAP	REFERENCE INFORMATION
(R95040)	AVES 3.5-157-0A11A B10CS D7 F4 N8 M3 V87E18 VS9S	10.000	.000	54.920	.000	SREF 2690.0000
(R95041)	AVES 3.5-157-0A11A B10CS D7 F4 N8 M3 V87E18 VS9S	-20.000	.000	54.920	.000	LREF 474.8000
(R95042)	AVES 3.5-157-0A11A B10CS D7 F4 N8 M3 V87E18 VS9S	-40.000	.000	54.920	.000	BREF 936.6800
(R95041)	AVES 3.5-157-0A11A B10CS D7 F4 N8 M3 V87E18 VS9S					YMRP 1076.4800
						ZMRP .0000
						SCALE 400.0000
						SCALE .0150

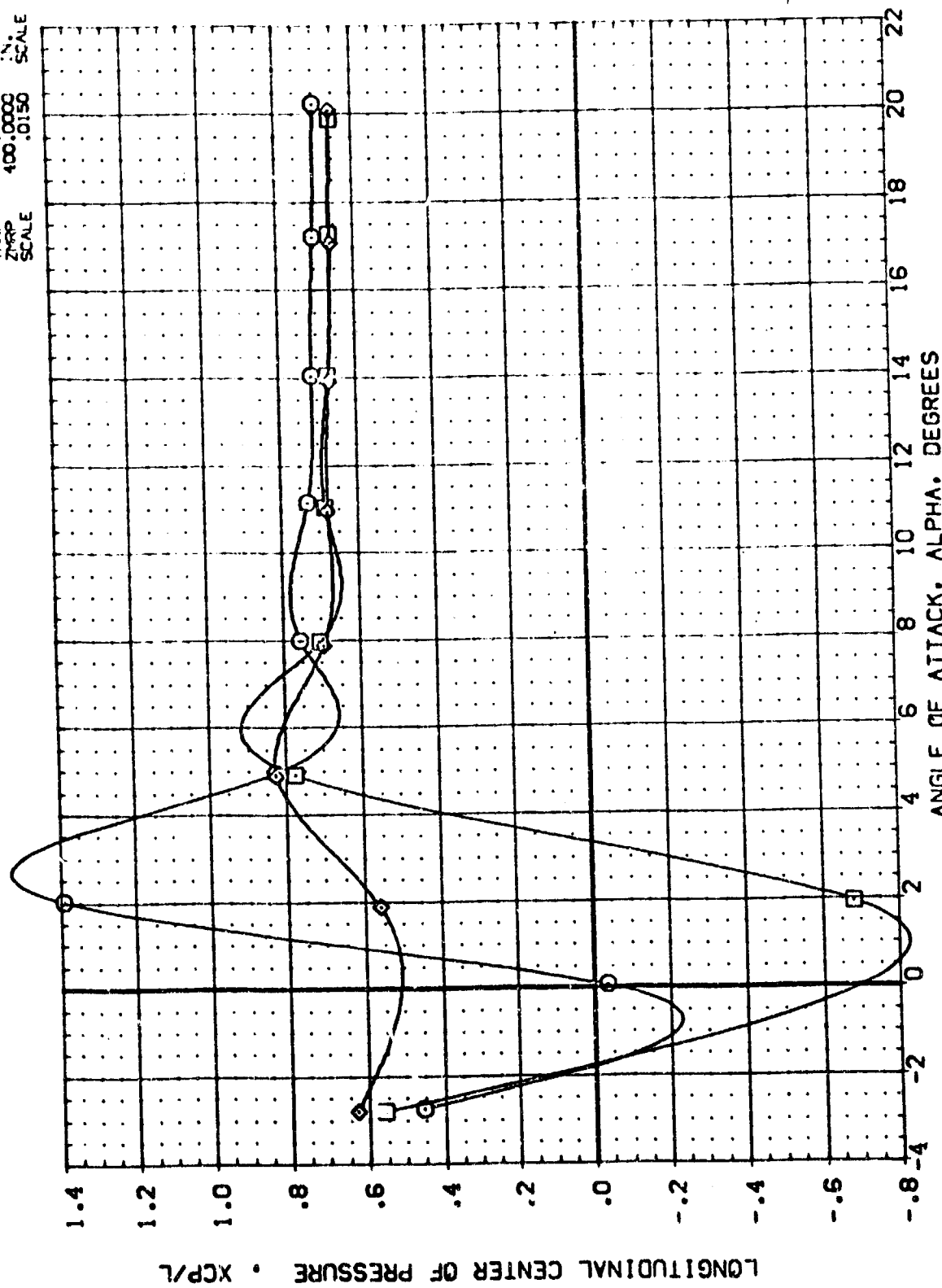


FIG. 10 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=7.32, BDFLAP=0.0 DEG. FWD CG
(A)MACH = 7.32

DATA SET SYMBOL	CON-IGURATION DESCRIPTION	ELEVON	AILERON	SPDBRK	BDFLAP	REFERENCE INFORMATION
(RBS040)	AVES 3.5-157-CA11A B10C5 D7 F4 N8 M3 V87E18 VSNS	10.000	.000	54.920	.000	SREF 2690.0000 SQ.FT.
(RBS042)	AVES 3.5-157-CA11A B10C5 D7 F4 N8 M3 V87E18 VSNS	-20.000	.000	54.920	.000	LREF 474.8000 IN.
(RBS041)	AVES 3.5-157-CA11A B10C5 D7 F4 N8 M3 V87E18 VSNS	-40.000	.000	54.920	.000	BREF 936.6800 IN.
						XPRP 1076.4800 IN.
						YPRP 400.0000 IN.
						ZPRP 400.0000 IN.
						SCALE .0150

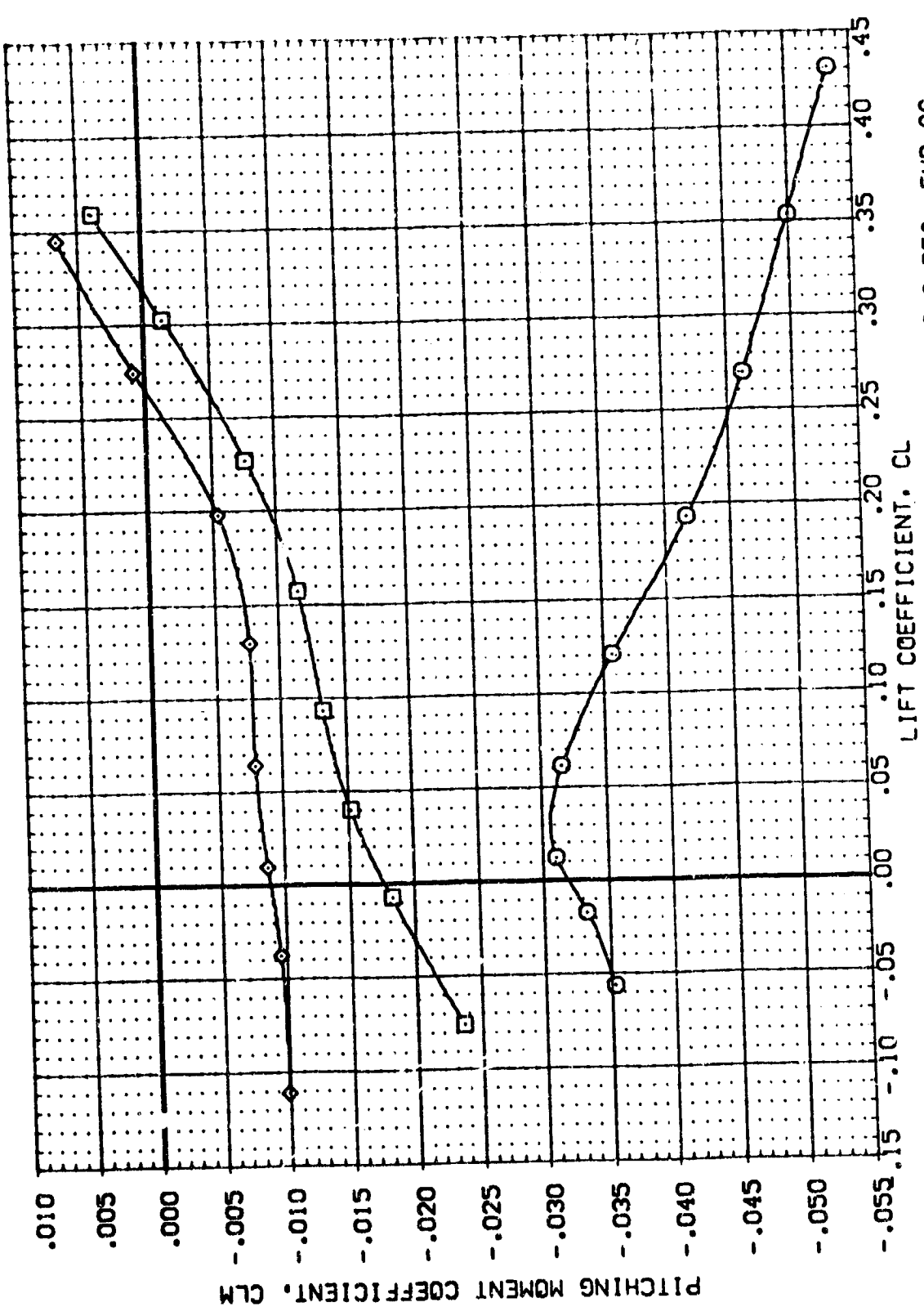


FIG. 10 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=7.32, BDFLAP=0.0 DEG. FWD CG

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPOILER	BDFLAP	REFERENCE INFORMATION
(R85040)	AMES 3.5-157-CA11A B10CS D7 F4 N8 M3 V87E18 VSRS	10.000	.000	54.920	.000	SREF 3690.0000 SQ.FT.
(R85042)	AMES 3.5-157-CA11A B10CS D7 F4 N8 M3 V87E18 VSRS	-20.000	.000	54.920	.000	LREF 474.6000
(R85041)	AMES 3.5-157-CA11A B10CS D7 F4 N8 M3 V87E18 VSRS	-40.000	.000	54.920	.000	BREF 936.6800
						XREF 1076.4800
						YREF .0000
						ZREF .0000
						SCALE 400.0000
						SCALE 100.0000

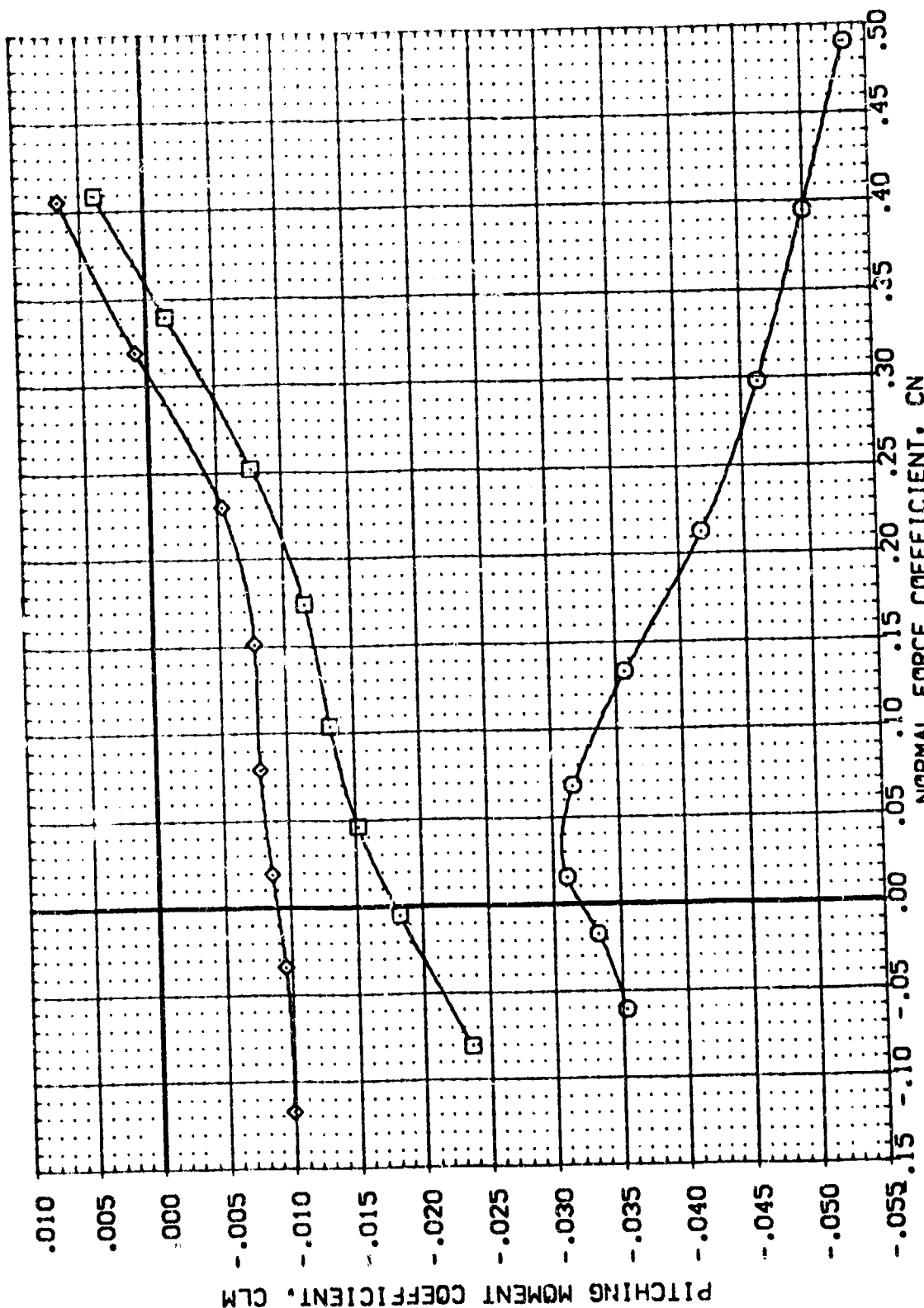


FIG. 10 TOTAL VEHICLE WITH DEFLECTED ELEVONS, M=7.32, BDFLAP=0.0 DEG. FWD CG

(A) MACH = 7.32

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVON	AILERON	SPOROK	BDFLAP	REFERENCE INFORMATION
(RBS040)	AVES 3.5-157-DALIA B10CS D7 F4 N8 PG V87E18 V5RS	10.000	.000	54.920	.000	SREF 2690.0000 SO.FT.
(RBS042)	AVES 3.5-157-DALIA B10CS D7 F4 N8 PG V87E18 V5RS	-20.000	.000	54.920	.000	LREF 474.8000 IN.
(RBS041)	AVES 3.5-157-DALIA B10CS D7 F4 N8 PG V87E18 V5RS	-40.000	.000	54.920	.000	RREF 936.6800 IN.
						XMRP 1076.1800 IN.
						YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0150

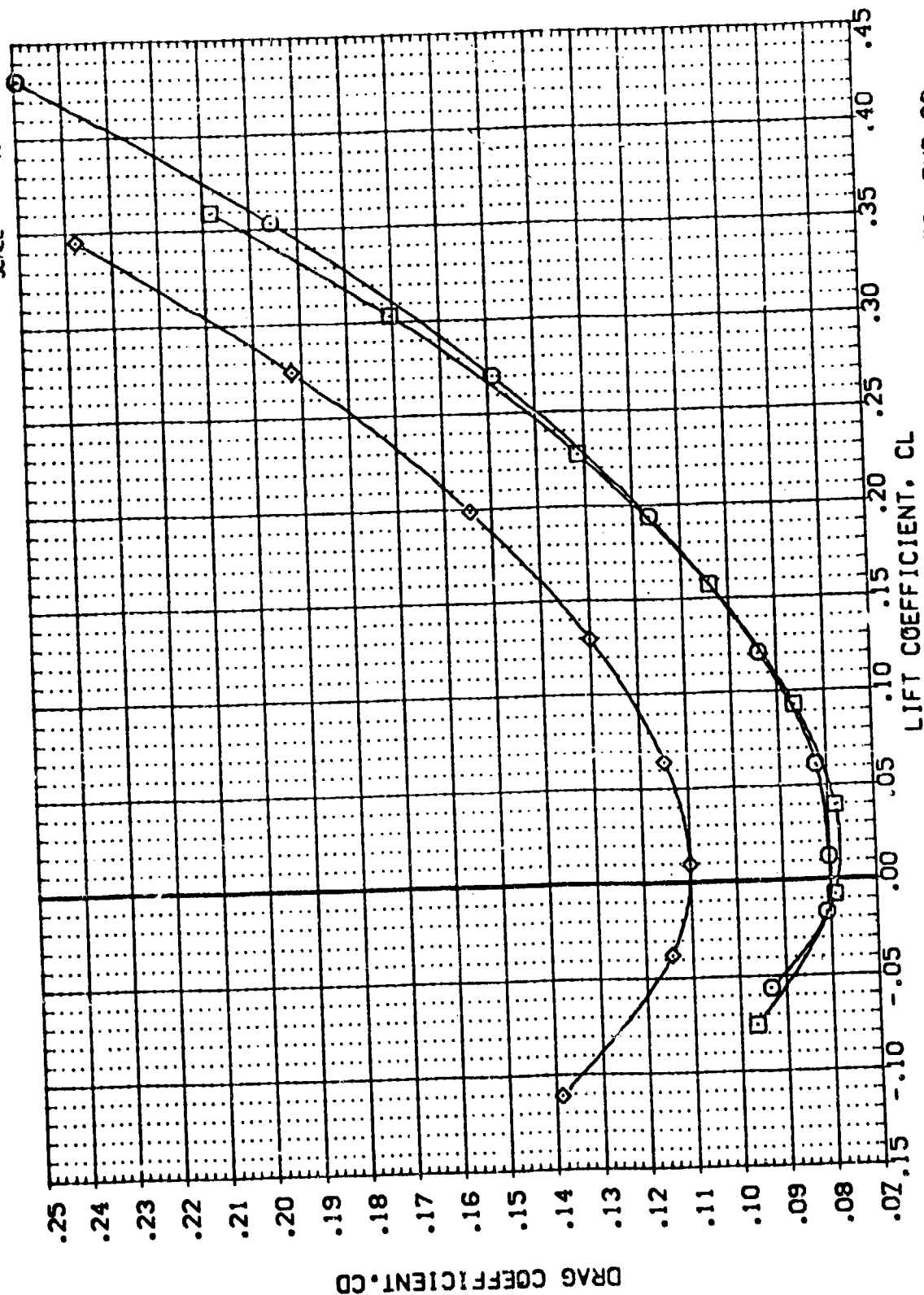


FIG. 10 TOTAL VEHICLE WITH DEFLECTED ELEVONS, $M=7.32$, $BDFLAP=0.0$ DEG. FWD CG

(A) MACH = 7.32

AMES 3.5-157-0A11A 810C5 07 F4 N8 M3 W87E18 V5R5(R8S062)

SYMBOL	MACH	PARAMETRIC VALUES	REFERENCE INFORMATION
○	7.320	ELVN-L .000 ELVN-R .000	SREF 2690.0000 SQ.FT.
		SPOBRK 54.920 RUDDER .000	LREF 474.8000 IN.
		AILRON .000 ELEVON .000	BREF 535.6800 IN.
		BOFLAP -14.750 ALPHA .000	XTRP 1076.1800 IN.
			YTRP .0000 IN.
			ZTRP 400.0000 IN.
			SCALE .0150

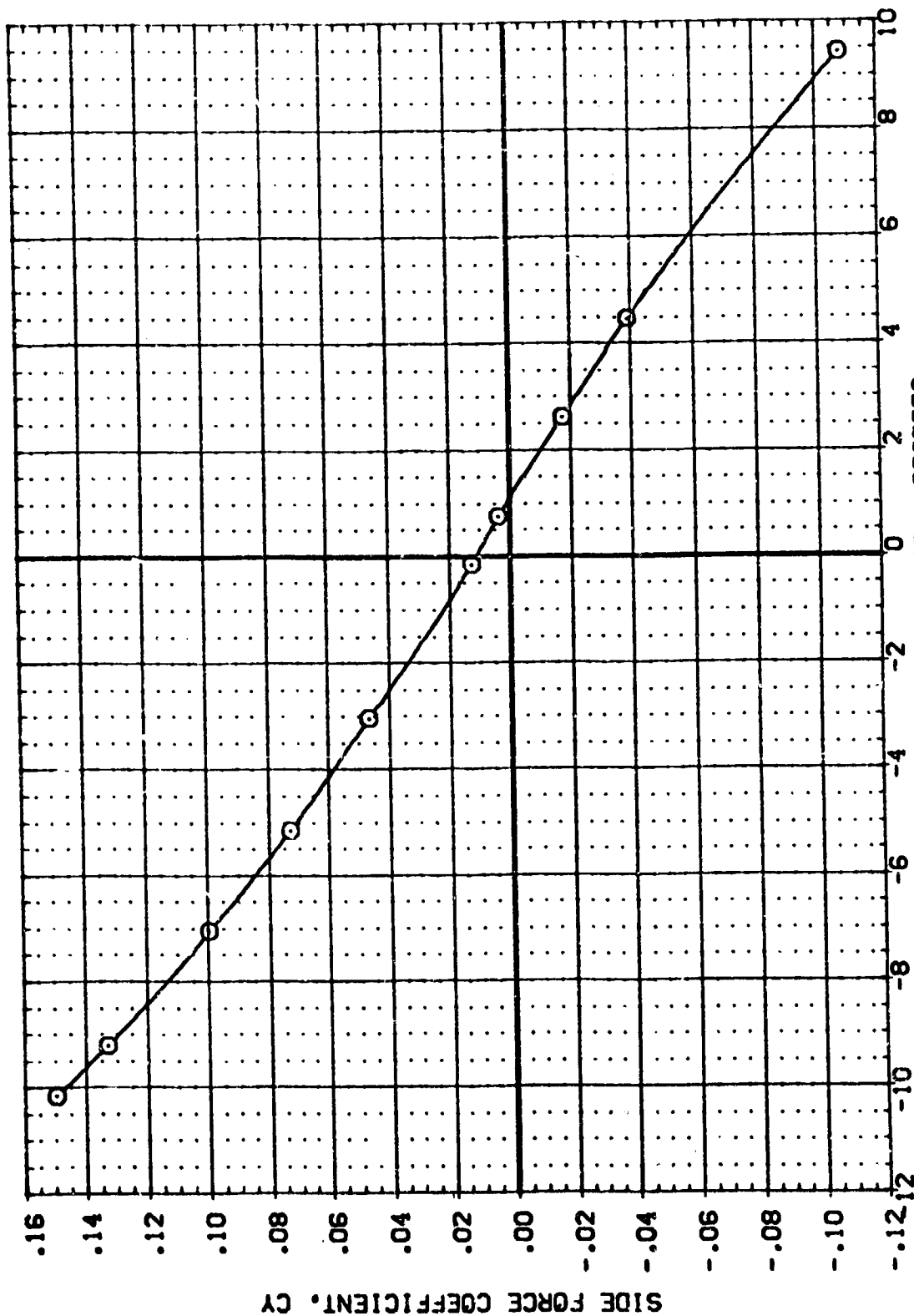


FIG. 11 TOTAL VEHICLE SIDESLIP CHARACTERISTICS, M=7.32, ALPHA=0.0 DEG

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5(RBS062)

SYMBOL MACH
Q 7.320

PARAMETRIC VALUES
ELVN-L .000 ELVN-R .000
SPOBRK 54.920 RUDDER .000
AILTRON .000 ELEVON .000
BOFLAP -14.750 ALPHA .000

REFERENCE INFORMATION
SREF 2690.0000 52.FT.
LREF 474.8000 IN.
BREF 936.6800 IN.
XTRP 1076.4800 IN.
YTRP 400.0000 IN.
ZTRP 400.0000 IN.
SCALE .0150

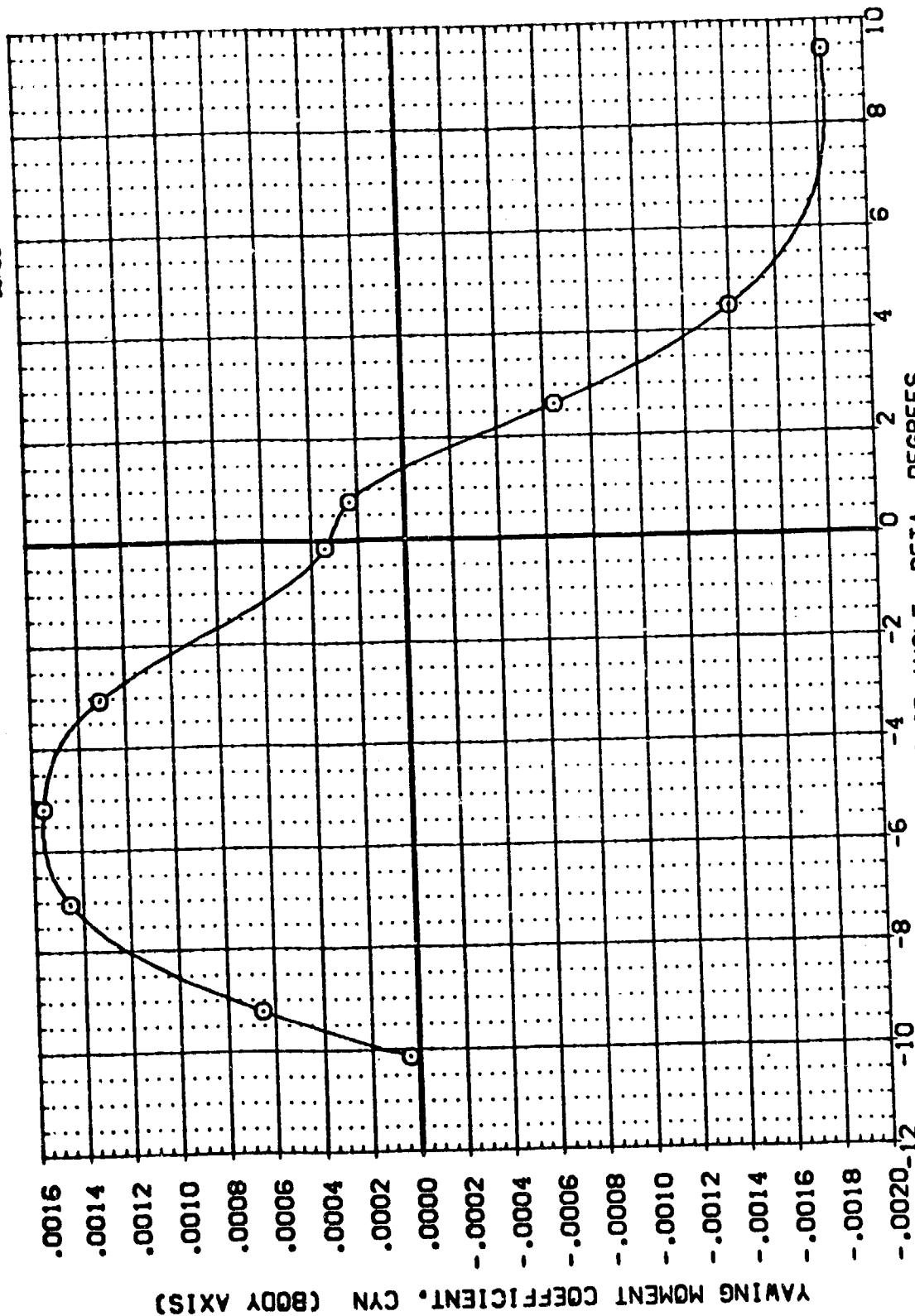


FIG. 11 TOTAL VEHICLE SIDESLIP CHARACTERISTICS, $M=7.32$, $\alpha=0.0$ DEG

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5 (R8S062)

SYMBOL \bigcirc MAGN 7.320

PARAMETRIC VALUES
 ELVN-L .000 ELVN-R .000
 SPOBRK 54.320 RUDDER .000
 AILRON .000 ELEVON .000
 BOFLAP -14.750 ALPHA

REFERENCE INFORMATION
 SREF 2630.0000 SQ.FT.
 LREF 474.8000 IN.
 BREF 936.6800 IN.
 XPRP 1076.4800 IN.
 YPRP .0000 IN.
 ZPRP 400.0000 IN.
 SCALE .0150

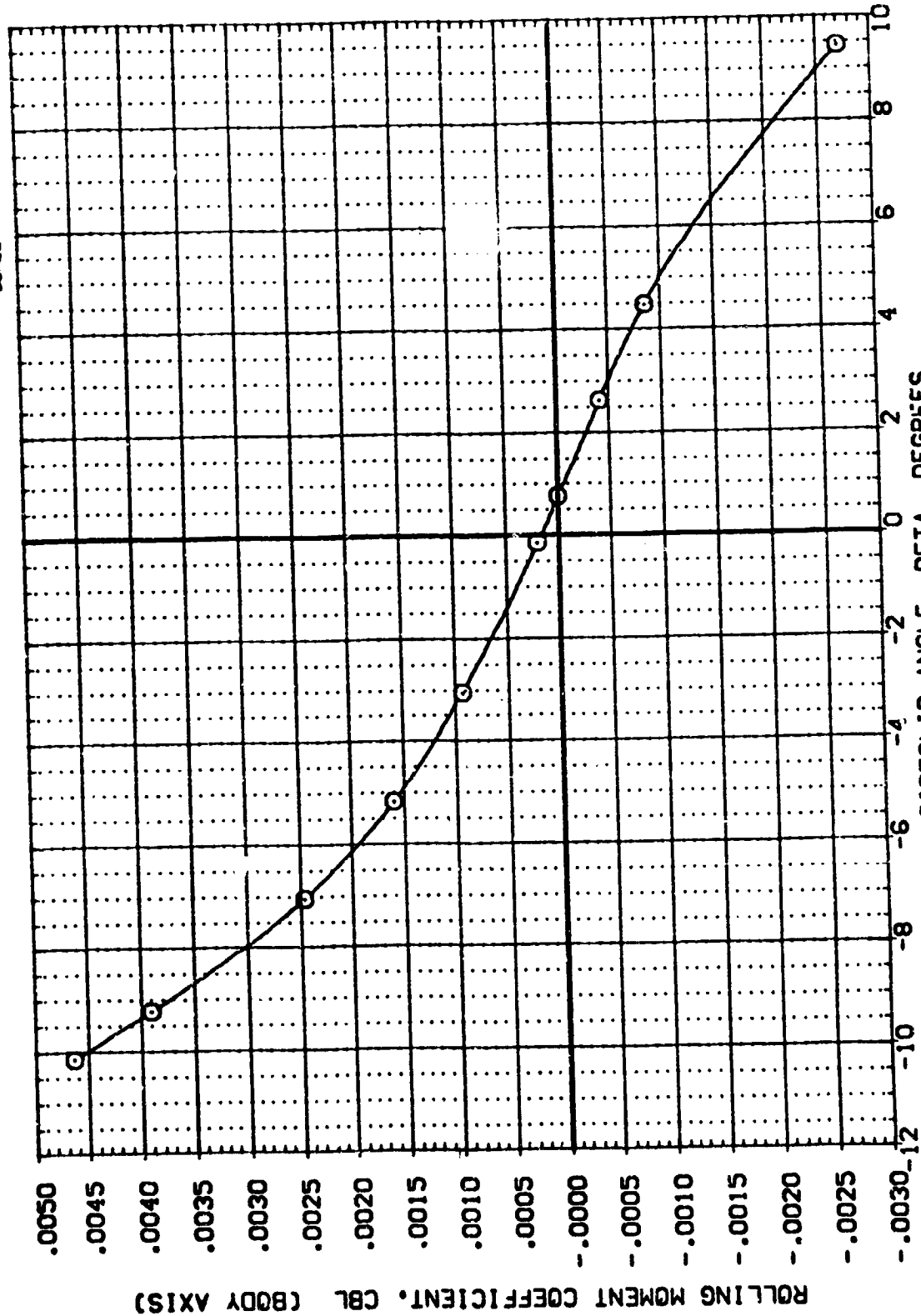


FIG. 11 TOTAL VEHICLE SIDESLIP CHARACTERISTICS, $M=7.32$, $\alpha=0.0$ DEG

AMES 3.5-157-0A11A B10C5 07 F4 N8 M3 W87E18 V5R5 (RBS061)

SYMBOL
O

MACH
7.320

ELVN-L
SPDRK
AILRON
BOFLAP

PARAMETRIC VALUES
.000 ELVN-R
54.920 RUDDER
.000 ELEVON
-14.750 ALPHA

.000
.000
.000
45.000

REFERENCE INFORMATION
SREF 2690.0000
LREF 474.8000
BREF 936.6800
XPRP 1076.1800
YPRP .0000
ZPRP 400.0000
SCALE .0150

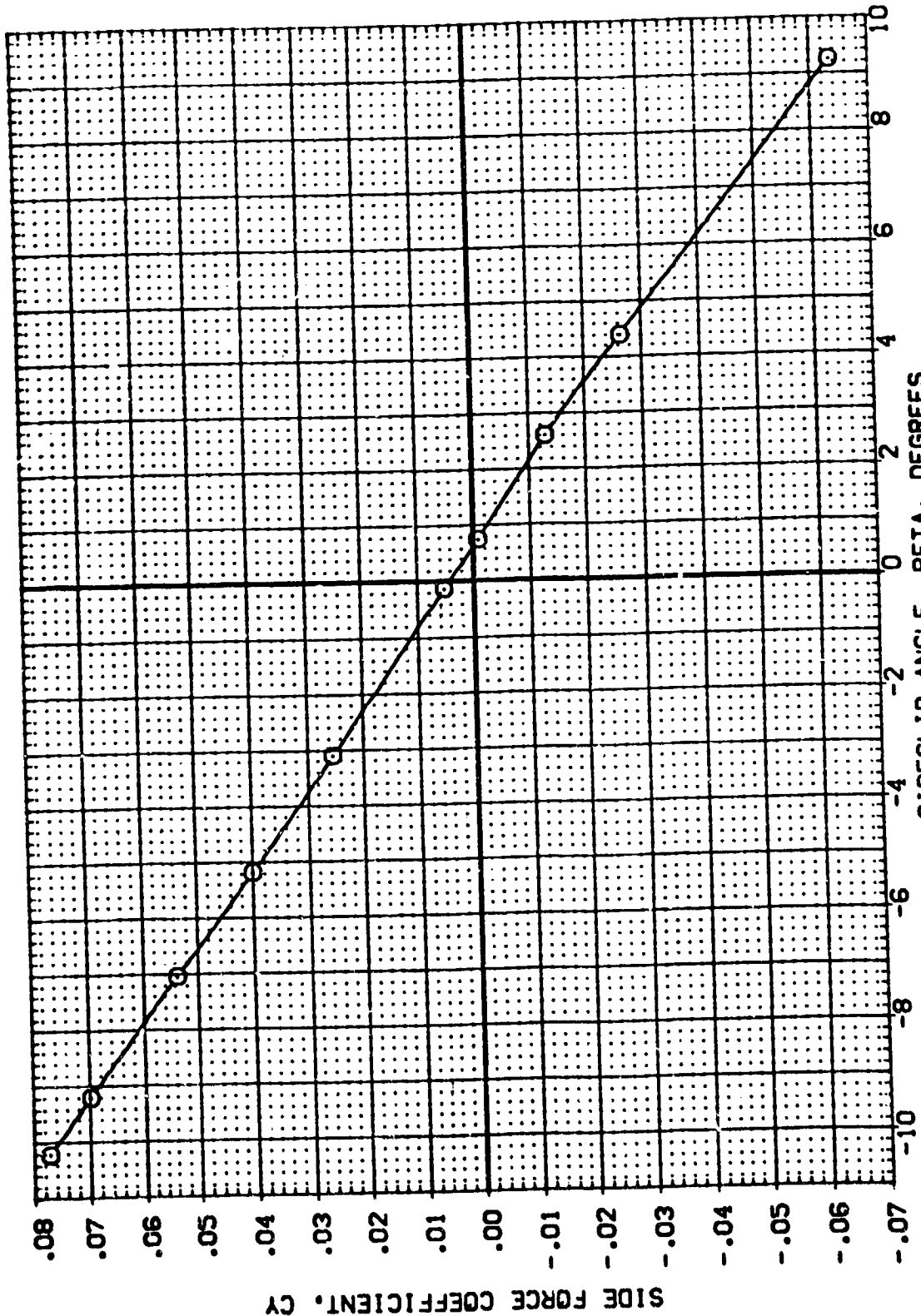


FIG. 12 TOTAL VEHICLE SIDESLIP CHARACTERISTICS, $M=7.32$, $\alpha=45.0$ DEG

AMES 3.5-157-0A11A B10C5 07 F4 N8 M3 W87E18 VSR5(RBS061)

SYMBOL \bigcirc MACH 7.320
 PARAMETRIC VALUES
 ELVN-L .000 ELVN-R .000
 SPDRBK 54.920 RUDDER .000
 ALLRON .000 ELEVON .000
 BOFLAP -14.750 ALPHA 45.000

REFERENCE INFORMATION
 SREF 2650.0000 90.FT.
 LREF 474.8000 IN.
 BREF 936.8900 IN.
 XPRP 1076.4800 IN.
 YPRP .0000 IN.
 ZPRP 400.0000 IN.
 SCALE .0150

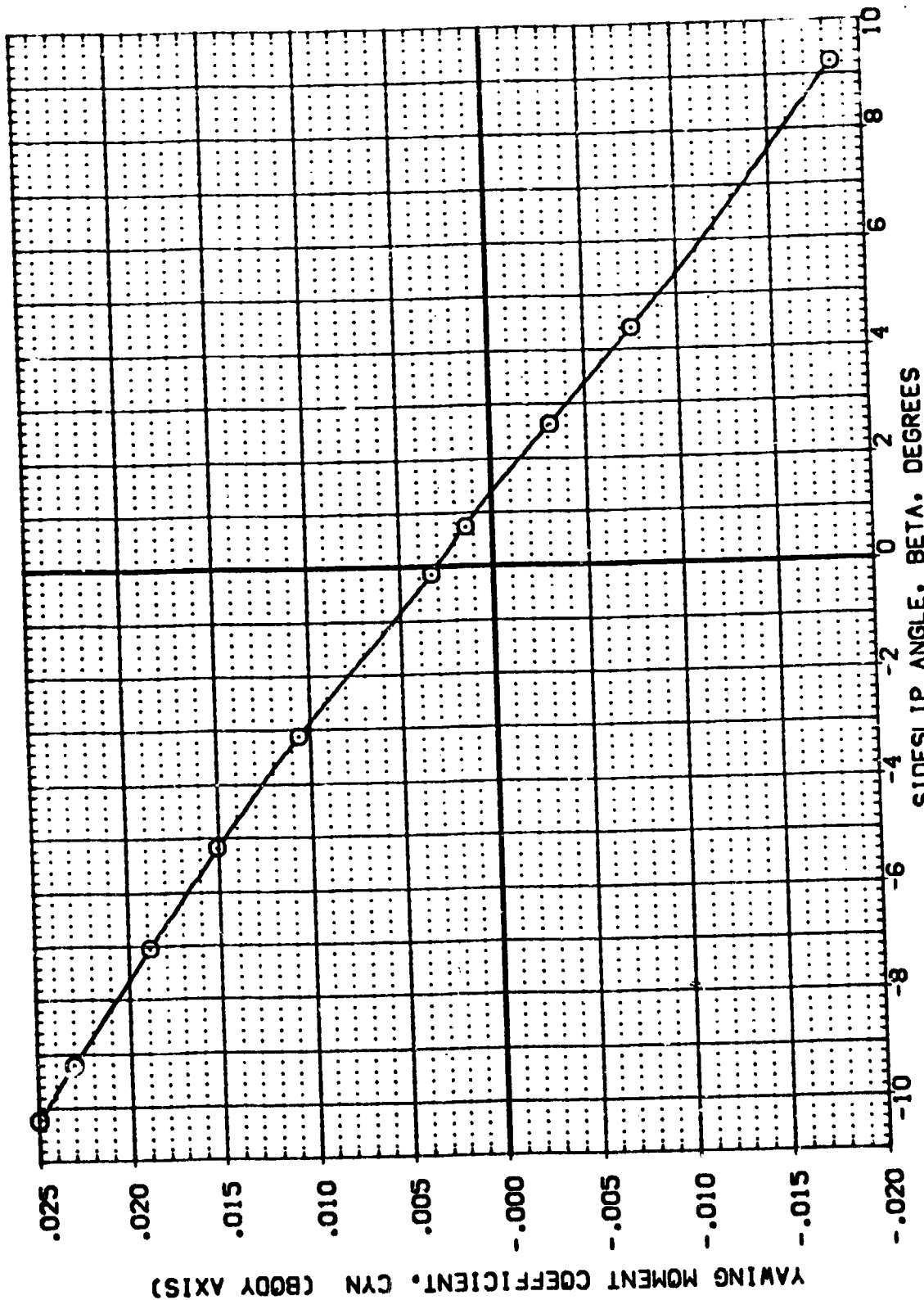


FIG. 12 TOTAL VEHICLE SIDESLIP CHARACTERISTICS, $M=7.32$, $\alpha=45.0$ DEG

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5 (RBS061)

SYMBOL	MACH	PARAMETRIC VALUES	REFERENCE INFORMATION
○	7.320	ELVN-L .000 ELVN-R .000	SREF 2650.0000 SQ.FT.
		SPOBRK 54.920 RUDDER .000	LREF 474.6000 IN.
		AILRON .000 ELEVON .000	BREF 936.6800 IN.
		BOFLAP -14.750 ALPHA 45.000	XMRP 1076.4800 IN.
			YMRP .0000 IN.
			ZMRP 400.0000 IN.
			SCALE .0150

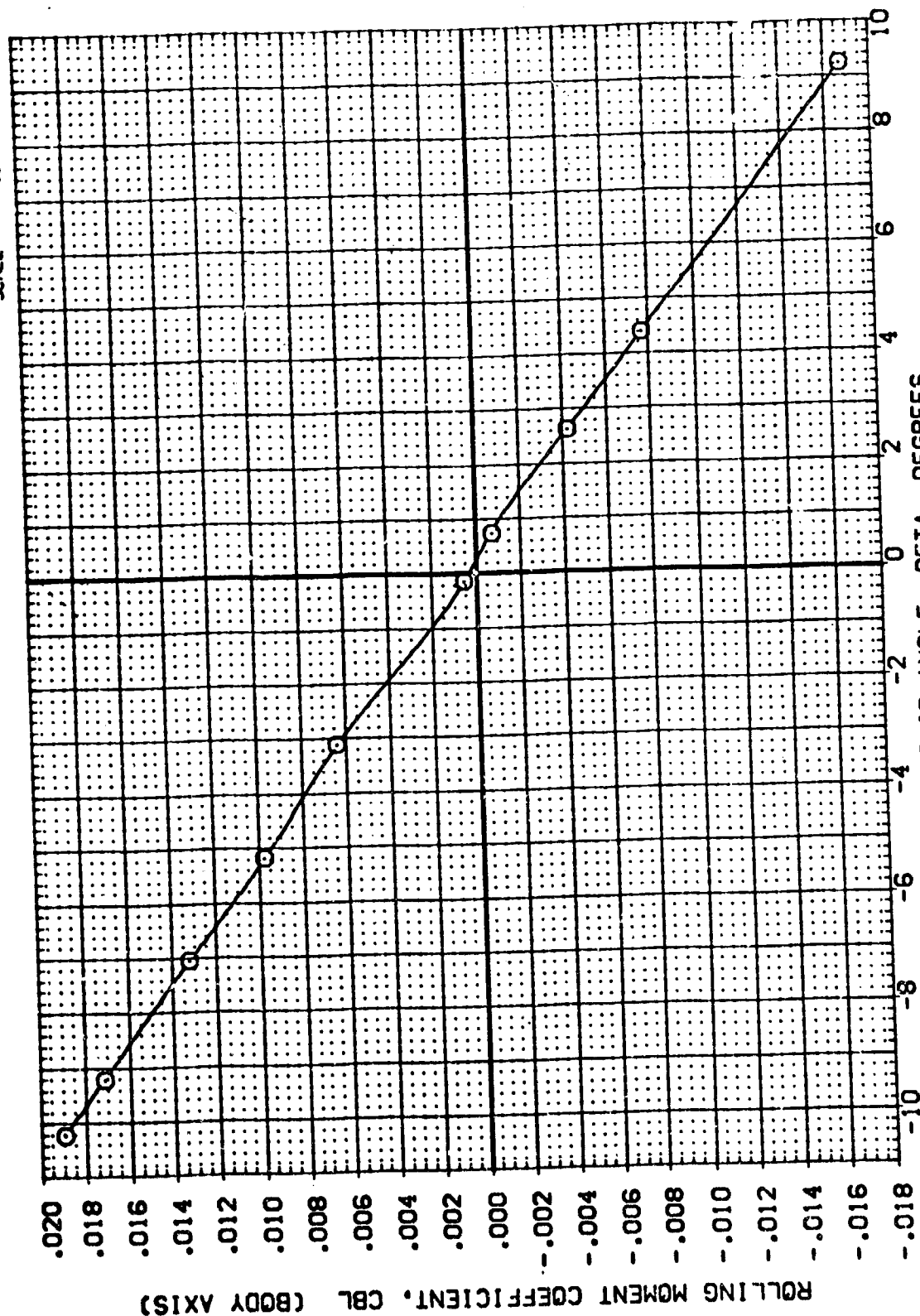


FIG. 12 TOTAL VEHICLE SIDESLIP CHARACTERISTICS, $M=7.32$, $\alpha=45.0$ DEG

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 VSR5 (KBSUB1J)

REFERENCE INFORMATION
 SQ.FT. 2650.0000
 IN. 474.8000
 IN. 936.6800
 IN. 1076.4800
 IN. 400.0000
 SCALE .0150

DATA SOURCE
 ALPHA .000
 R85062

PARAMETRIC VALUES
 ELVH-L .000
 ELVH-R .000
 RUDDER 54.920
 ELEVON .000
 -14.750

SYMBOL MACH
 O 7.220

ELVH-L
 SPOBRK
 AILRON
 BDFLAP

DATA SOURCE
 ALPHA .000
 R85061
 .000

PARAMETRIC VALUES
 ELVH-L .000
 ELVH-R .000
 RUDDER 54.920
 ELEVON .000
 -14.750

DATA SOURCE
 ALPHA .000
 R85062

PARAMETRIC VALUES
 ELVH-L .000
 ELVH-R .000
 RUDDER 54.920
 ELEVON .000
 -14.750

DATA SOURCE
 ALPHA .000
 R85061
 .000

PARAMETRIC VALUES
 ELVH-L .000
 ELVH-R .000
 RUDDER 54.920
 ELEVON .000
 -14.750

DATA SOURCE
 ALPHA .000
 R85062

PARAMETRIC VALUES
 ELVH-L .000
 ELVH-R .000
 RUDDER 54.920
 ELEVON .000
 -14.750

DATA SOURCE
 ALPHA .000
 R85061
 .000

PARAMETRIC VALUES
 ELVH-L .000
 ELVH-R .000
 RUDDER 54.920
 ELEVON .000
 -14.750

DATA SOURCE
 ALPHA .000
 R85062

PARAMETRIC VALUES
 ELVH-L .000
 ELVH-R .000
 RUDDER 54.920
 ELEVON .000
 -14.750

DATA SOURCE
 ALPHA .000
 R85061
 .000

PARAMETRIC VALUES
 ELVH-L .000
 ELVH-R .000
 RUDDER 54.920
 ELEVON .000
 -14.750

DATA SOURCE
 ALPHA .000
 R85062

PARAMETRIC VALUES
 ELVH-L .000
 ELVH-R .000
 RUDDER 54.920
 ELEVON .000
 -14.750

DATA SOURCE
 ALPHA .000
 R85061
 .000

PARAMETRIC VALUES
 ELVH-L .000
 ELVH-R .000
 RUDDER 54.920
 ELEVON .000
 -14.750

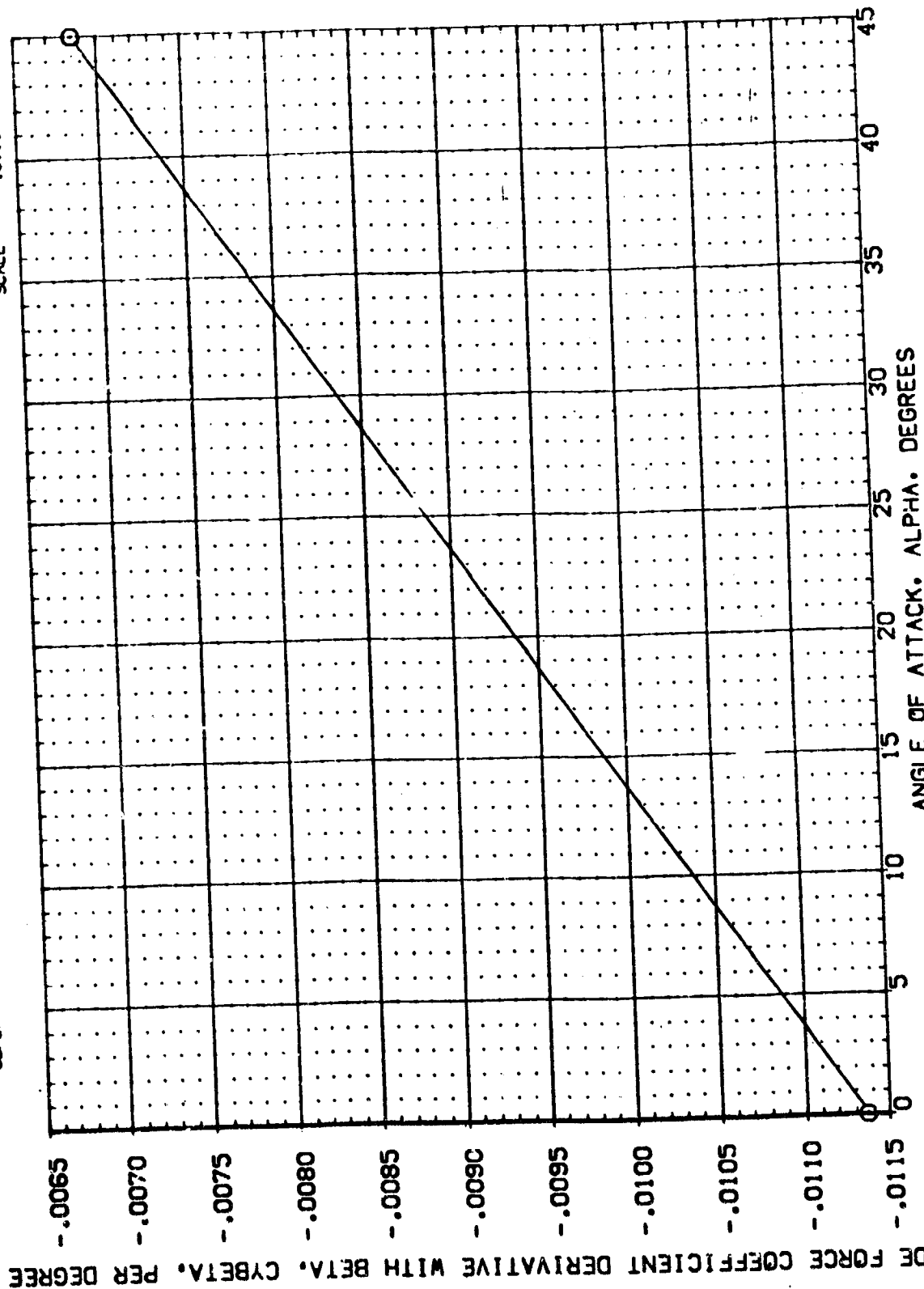


FIG. 13 TOTAL VEHICLE SIDESLIP DERIVATIVES, M=7.32

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 VSR5(RBS061)

SYMBOL	MACH	PARAMETRIC VALUES	DATA SOURCE	REFERENCE INFORMATION
○	7.320	ELVN-L SPDRK AILRON BDFLAP	.000 DATASET ALPHA .000 RBS061 45.000 .000 RBS062	SREI 2630.0000 SQ.FT. LREF 474.8000 IN. BREF 936.6800 IN. XMRP 1076.4800 IN. YMRP 0.0000 IN. ZMRP 400.0000 IN. SCALE .0150

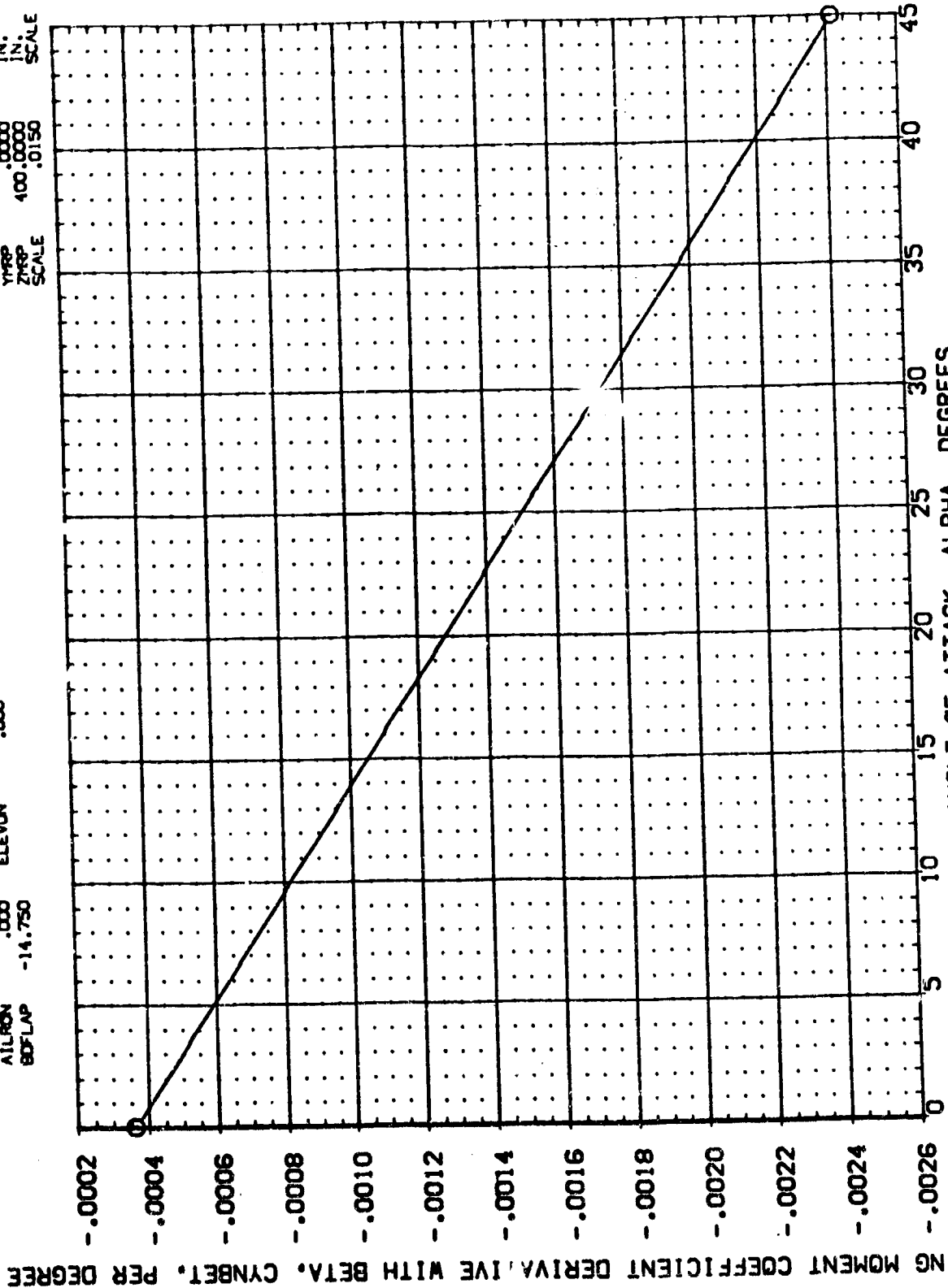


FIG. 13 TOTAL VEHICLE SIDESLIP DERIVATIVES, M=7.32

AMES 3.5-157-GA11A B10C5 D7 F4 N8 M3 W87E18 V5R5(RBS061)

SYMBOL	WICH	PARAMETRIC VALUES	DATA SOURCE	REFERENCE INFORMATION
O	7.320	ELVN-L SPDRK AILRON BOFLAP	ALPHA RBS061 .000	SREF LREF PREF XPRP YPRP ZPRP SCALE
		.000 54.920 .000 -14.750	ALPHA RBS062 .000	2690.0000 474.8000 936.6800 1076.4800 400.0000 400.0000 .0190
				IN. IN. IN. IN. IN. IN. SCALE

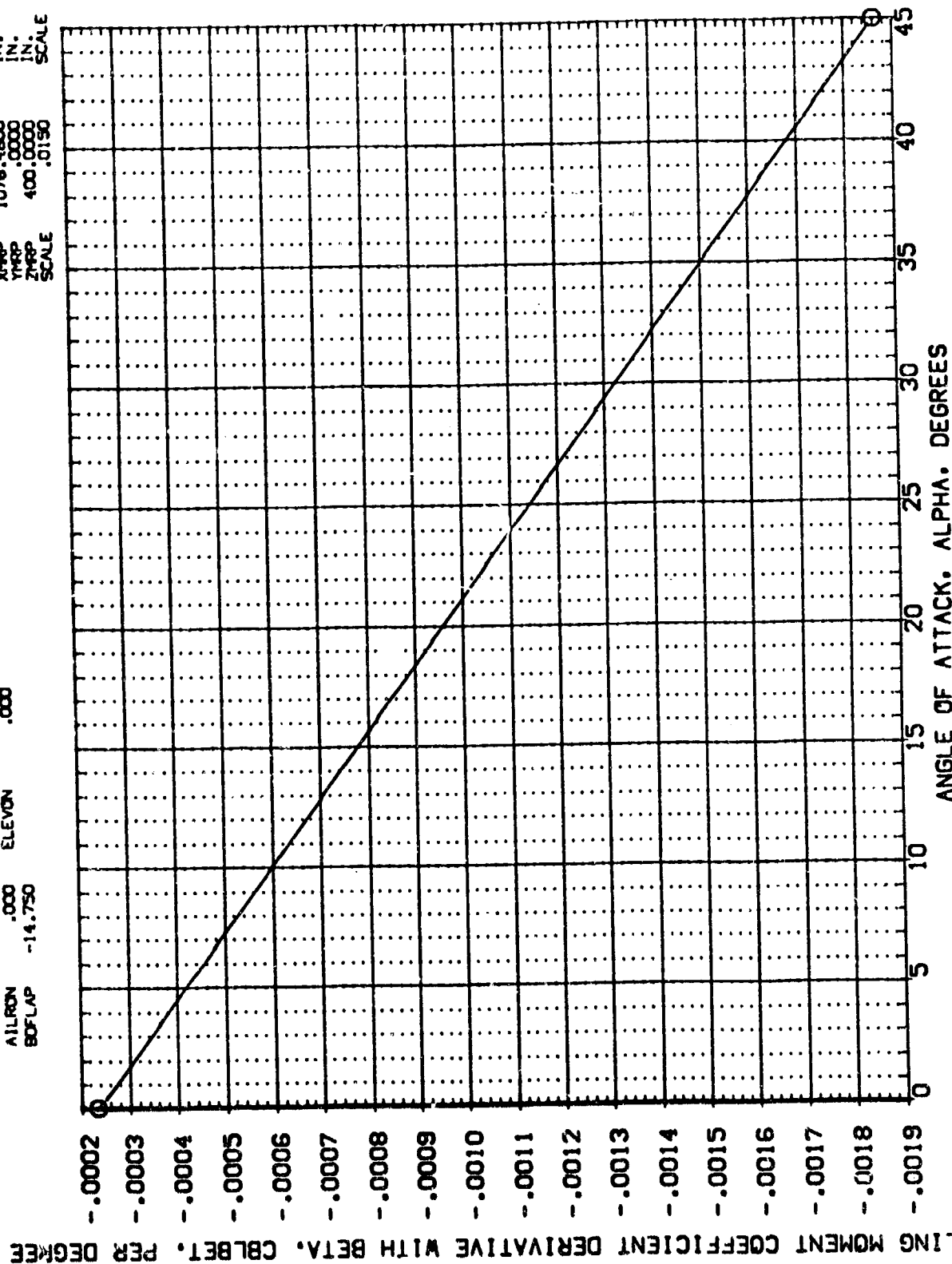


FIG. 13 TOTAL VEHICLE SIDESLIP DERIVATIVES, M=7.32

APPENDIX
TABULATED SOURCE DATA

Plotted data tabulations available from the DMS on request

REFERENCE DATA
 SREF = 2000.0000 SQ.FT. XGRP = 1076.4000 IN.
 LREF = 474.0000 IN. YGRP = .0000 IN.
 BREF = 936.0000 IN. ZGRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 2 / 0 RV/L = 2.43 GRADIENT INTERVAL = -5.00/

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CEL	L/D
5.265	-2.235	.08125	.09557	.09311	-.06491	-.03154	.42827	-.00245	-.00008	-.00001	-.64062
5.266	1.930	.00612	.06797	.06772	.02843	-.03079	1.96634	-.00276	.00002	-.00011	.09700
5.267	4.336	.01405	.09073	.04946	.01802	-.01254	.93883	-.00498	.00050	.00045	.27703
5.268	7.366	.02284	.04278	.04208	.00832	-.03283	2.07135	-.00041	-.00003	.00000	.06634
5.269	10.480	.03142	.06676	.04524	.12267	-.03631	.76363	.00014	.00035	-.00032	1.68193
5.270	11.135	.03516	.07835	.04672	.16035	-.03505	.73443	.00217	.00097	-.00071	1.99310
5.271	13.448	.04039	.15522	.08483	.13269	-.05120	.72996	.00069	.00029	-.00022	1.83215
5.272	16.525	.04709	.20422	.08939	.41673	-.05922	.71939	.00127	.00039	-.00034	1.83183
5.273	19.817	.04156	.27030	.09429	.33565	-.07679	.71124	.00128	.00064	-.00039	1.74603
5.274	GRADIENT	.01159	-.00562	-.00641	.01275	.02255	.09019	-.00034	.00009	.00006	.13922

REFERENCE DATA
 SREF = 2000.0000 SQ.FT. XGRP = 1076.4000 IN.
 LREF = 474.0000 IN. YGRP = .0000 IN.
 BREF = 936.0000 IN. ZGRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 3 / 0 RV/L = 2.59 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CEL	L/D
5.275	17.988	.41443	.22601	.08887	.48459	-.06800	.71232	-.00039	.00023	-.00005	1.81764
5.276	22.108	.49661	.28103	.07347	.56586	-.06459	.70080	-.00004	.00060	-.00042	1.76707
5.277	24.607	.53296	.32268	.07146	.61892	-.06974	.70128	.00600	.00095	-.00249	1.65167
5.278	27.642	.63365	.41928	.07744	.73585	-.08046	.69805	.00712	.00055	-.00263	1.51130
5.279	30.809	.78735	.57681	.09215	.97167	-.09402	.69458	.00056	.00047	-.00115	1.36502
5.280	33.698	.89446	.71764	.10080	1.14232	-.11144	.69487	.00093	.00009	-.00058	1.24638
5.281	36.927	.96588	.85672	.10457	1.28684	-.12547	.69485	-.00031	.00015	-.00071	1.12743
5.282	40.051	1.00022	.97935	.10581	1.39594	-.13973	.69578	-.00047	-.00006	-.00069	1.02131
5.283	GRADIENT	1.03673	1.12532	.10788	1.52627	-.15490	.69618	-.00006	-.00036	-.00070	.92128
5.284		.02763	.03788	.00139	.04544	-.00051	-.00051	-.00011	-.00003	.00001	-.03830

DATE 20 SEP 73 TABULATED SOURCE DATA - ARC 3.5 157

AVES 3.5-157-0A11A B1DC5 D7 F4 N8 M3 WATE18 V5R5 (RBS004) (17 JUL 73)

REFERENCE DATA

SREF = 2690.0000 54. FT. XMRP = 1076.4800 IN.
 LREF = 474.8000 IN. YMRP = .0000 IN.
 BREF = 936.8800 IN. ZMRP = 400.0000 IN.
 SCALE = .0150 SCALE

PARAMETRIC DATA

ELVN-L = .000 ELVN-R = .000
 SPDBRK = 54.920 RUDDER = .000
 AILRON = .000 ELEVON = .000
 BDFLAP = .000 BETA = .000

RUN NO. 4/ 0 RN/L = 2.44 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	CN	CLM	XCF/L	CY	CYN	CBL	L/D
5.275	18.005	.58462	.20697	.07987	.43037	-.03868	.64212	-.00110	.00031	-.00083	1.84053
5.275	22.218	.47321	.26261	.06418	.53738	-.02942	.67956	-.00088	.00070	-.00144	1.80182
5.275	24.727	.51657	.30564	.06153	.59706	-.03232	.67934	.00432	.00038	-.00329	1.69014
5.275	27.714	.61545	.39796	.06608	.76982	-.04002	.57959	-.00083	.00018	-.00165	1.54652
5.272	30.848	.76967	.54885	.07656	.94222	-.05186	.67967	-.00017	.00069	-.00230	1.40230
5.275	33.740	.96751	.87638	.08228	1.09618	-.06125	.67993	-.00027	.00079	-.00220	1.27879
5.275	36.908	.96652	.94147	.09241	1.27816	-.07989	.68234	-.00075	.00066	-.00161	1.14851
5.275	40.128	.98506	.93365	.08222	1.35109	-.08659	.68290	-.00129	.00069	-.00247	1.04971
5.275	43.261	1.00419	.90939	.09329	1.45731	-.09954	.68441	-.00004	.00036	-.00208	.94799
GRADIENT		.02775	.03646	.00077	.04461	-.00265	-.00009	-.00003	.00001	-.00003	-.00003

REFERENCE DATA

SREF = 2690.0000 54. FT. XMRP = 1076.4800 IN.
 LREF = 474.8000 IN. YMRP = .0000 IN.
 BREF = 936.8800 IN. ZMRP = 400.0000 IN.
 SCALE = .0150 SCALE

PARAMETRIC DATA

ELVN-L = .000 ELVN-R = .000
 SPDBRK = 54.920 RUDDER = .000
 AILRON = .000 ELEVON = .000
 BDFLAP = .000 BETA = .000

RUN NO. 5/ 0 RN/L = 2.38 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	CN	CLM	XCF/L	CY	CYN	CBL	L/D
5.275	-2.091	-.07213	.09667	.79404	-.07361	-.02694	.52911	-.00171	-.00005	-.00014	-.72544
5.275	2.025	-.00263	.06704	.04709	-.00326	-.02072	-.02798	-.00147	.00005	-.00017	-.03920
5.275	4.536	.02708	.05890	.05818	.00166	-.01462	.82510	-.00553	.00053	.00271	.45978
5.275	7.472	-.00885	.04065	.04145	-.00349	-.007	-.14554	.00006	.00014	-.00005	-.21774
5.272	10.527	.12982	.06817	.04340	.14011	-.01185	.69022	-.00096	-.00005	.00029	1.90157
5.275	13.437	.26152	.14287	.07819	.24746	-.03751	.70663	.00230	.00046	-.00055	1.83051
5.275	16.975	.35218	.18034	.08708	.39128	-.03959	.69617	.00315	.00058	-.00065	1.86997
5.275	19.841	.44749	.24838	.08175	.50523	-.04238	.68998	.00321	.00075	-.00089	1.80165
GRADIENT		.01484	-.00583	-.00574	.01607	.00175	-.74397	-.00001	.00008	.00008	.17765

AVES 3.5-157-0A11A B1DC5 D7 F4 N8 M3 WATE18 V5R5 (RBS005) (17 JUL 73)

DATE 20 SEP 73

TABULATED SOURCE DATA - ARC 3.5 157

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W8TE16 V5R5

(RBS006) (17 JUL 73)

REFERENCE DATA

REF = 2080.0000 96.77. XMRP = 1076.4600 IN.
 LREF = 474.0000 IN. YMRP = .0000 IN.
 BREF = 936.6800 IN. ZMRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 6/ 0 RN/L = 2.32 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.273	-2.191	-1.1808	.11858	.11368	-.12512	.00437	.67248	.00193	-.00199	-.00096	-1.01763
5.273	2.000	-0.910	.08579	.06707	-.03939	-.00123	.64745	.00117	-.00112	-.00282	-.44413
5.273	4.522	.01280	.07209	.07755	.01852	-.00337	.72900	.00119	-.00070	-.00058	-.17897
5.273	7.397	-.02394	.04365	.0637	-.01812	-.01484	.36723	.00082	-.00023	-.00079	-.54844
5.272	10.502	.13150	.07467	.04945	.14291	-.00596	.67489	-.00412	-.00060	.00029	1.76108
5.273	13.421	.22348	.13923	.08355	.24969	-.01165	.67668	.00356	-.00023	-.00044	1.60520
5.273	16.977	.30934	.17950	.08379	.34770	-.01010	.67037	.00430	-.00004	-.00037	1.72330
5.273	19.665	.40348	.23606	.08475	.45972	-.00783	.66908	.00435	.00018	-.00030	1.70923
5.273	GRADIENT	.01983	-.00704	-.00643	.02146	-.00120	.65696	-.00012	.00013	.00005	.17447

PARAMETRIC DATA

ELVN-L = -40.000 ELVN-R = -40.000
 SPDRK = 54.920 RUDDER = .000
 AILRON = .000 ELEVON = -40.000
 BDFLAP = .000 BETA = .000

REFERENCE DATA

REF = 2080.0000 96.77. XMRP = 1076.4600 IN.
 LREF = 474.0000 IN. YMRP = .0000 IN.
 BREF = 936.6800 IN. ZMRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 7/ 0 RN/L = 2.30 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.273	-2.183	-1.1218	.11871	.11399	-.12607	.00483	.67370	-.00023	-.00138	-.00082	-1.02466
5.273	2.012	-.03770	.08602	.06730	-.03469	-.00190	.64038	-.00055	-.00047	-.00077	-.43859
5.273	4.544	.01796	.06973	.06826	.02346	-.00759	.77564	-.00009	-.00009	-.00018	.25804
5.273	7.456	-.01587	.04462	.04604	-.00796	-.01637	-.07556	-.00033	-.00017	-.00105	-.31375
5.272	10.510	.13150	.07463	.04939	.14291	-.00747	.67867	-.00592	-.00085	.00023	1.76204
5.273	13.430	.22069	.13858	.08353	.24684	-.00758	.67097	.00208	-.00021	-.00061	1.59249
5.273	16.544	.30528	.17803	.08373	.34735	-.00495	.66504	.00273	.00005	-.00053	1.71483
5.273	19.741	.39574	.23197	.08467	.45083	-.00061	.66047	.00286	.00014	-.00041	1.70595
5.273	22.979	.48359	.28896	.08645	.56193	.00365	.65767	.00276	.00026	-.00060	1.61757
5.273	GRADIENT	.02068	-.00733	-.00678	.02218	-.00182	.61283	.00001	.00014	.00009	.19556

PARAMETRIC DATA

ELVN-L = -40.000 ELVN-R = -40.000
 SPDRK = 54.920 RUDDER = .000
 AILRON = .000 ELEVON = -40.000
 BDFLAP = -14.750 BETA = .000

(RBS007) (17 JUL 73)

DATE 20 SEP 73

TABULATED SOURCE DATA - ARC 3.5 157

AVES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E16 V5R5

(RBS008) (17 JUL 73)

PAGE 4

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XPRP = 1076.4800 IN.
 LREF = 474.8000 IN. YPRP = .0000 IN.
 BREF = 936.6800 IN. ZPRP = 400.0000 IN.
 SCALE = .0190 SCALE

RUN NO. 8/ 0 RV/L = 2.35 GRADIENT INTERVAL = -5.00/ 5.00

MAON	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.275	18.053	.54397	.20042	.08395	.38915	-.00249	.66228	.00286	.00015	-.00020	1.71631
5.275	22.211	.44093	.25241	.06700	.50363	.01114	.65208	.00176	.00054	.00022	1.74667
5.275	24.753	.49713	.30460	.06667	.57697	.01694	.65376	.00171	.00060	.00033	1.63207
5.275	27.725	.57061	.38122	.07198	.68245	.01211	.65365	.00063	.00067	.00070	1.49692
5.275	30.861	.69076	.50502	.07919	.82202	.01944	.65163	.00235	.00066	.00005	1.36778
5.275	33.753	.79340	.63377	.08611	1.01180	.02071	.65267	.00170	.00033	.00041	1.25187
5.275	36.952	.86497	.76390	.09049	1.15045	.01822	.65433	.00401	.00016	-.00044	1.13231
5.275	40.142	.89101	.86028	.08321	1.23574	.02254	.65347	.00256	.00053	-.00043	1.03572
5.275	42.489	.90879	.94518	.08248	1.30931	.02045	.65441	.00264	.00031	-.00049	.96255
5.272		.02515	.03272	.00054	.04034	.07088	-.00018	.00004	-.00000	-.00003	-.03495

GRADIENT

AVES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E16 V5R5

(RBS009) (17 JUL 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XPRP = 1076.4800 IN.
 LREF = 474.8000 IN. YPRP = .0000 IN.
 BREF = 936.6800 IN. ZPRP = 400.0000 IN.
 SCALE = .0190 SCALE

RUN NO. 9/ 0 RV/L = 2.41 GRADIENT INTERVAL = -5.00/ 5.00

MAON	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.272	17.972	.59066	.20259	.08445	.39625	-.00837	.66799	.00247	.00011	-.00016	1.73166
5.272	22.234	.44813	.25454	.06605	.51113	.00103	.65927	.00180	.00047	.00020	1.76054
5.272	24.710	.52085	.31419	.06770	.60450	-.00371	.66218	.00204	.00050	.00038	1.65774
5.272	27.719	.58902	.39004	.07130	.70285	-.00087	.66043	.00076	.00069	.00068	1.51017
5.272	30.817	.70979	.51637	.07983	.87411	.00370	.65848	.00225	.00062	.00010	1.37456
5.272	33.771	.81299	.84936	.08787	1.05678	.00209	.65927	.00087	.00053	.00036	1.25199
5.272	36.894	.88507	.78043	.09282	1.17635	-.00290	.66087	.00399	.00023	-.00041	1.13407
5.272	40.209	.91507	.88470	.08486	1.26998	-.00136	.66037	.00235	.00055	-.00021	1.03433
5.272		.02745	.03281	.00076	.04198	.00022	-.00023	.00003	.00001	-.00001	-.03596

GRADIENT

PARAMETRIC DATA

ELVN-L = -40.000 ELVN-R = -40.000
 SPDBRK = 54.920 RUDDER = .000
 AIRLON = .000 ELEVON = -40.000
 BOFLAP = .000 BETA = .000

PARAMETRIC DATA

ELVN-L = -40.000 ELVN-R = -40.000
 SPDBRK = 54.920 RUDDER = .000
 AIRLON = .000 ELEVON = -40.000
 BOFLAP = -14.750 BETA = .000



DATE 20 SEP 73

TABULATED SOURCE DATA - ARC 3.5 157

(RBS010) (17 JUL 73)

AMES 3.5-157-0A11A B10C5 D7 F4 N8 NO W87E16 V3R5

PARAMETRIC DATA

ELVN-L = -20.000 ELVN-R = -20.000
SPDRK = 24.920 RUDDER = .000
AILRON = .000 ELEVON = -20.000
BDFLAP = .000 BETA = .000

REFERENCE DATA

MREF = 2890.0000 56. FT. XREF = 1076.4600 IN.
LREF = 474.8000 IN. YREF = .0000 IN.
BREF = 936.6600 IN. ZREF = 400.0000 IN.
SCALE = .0150 SCALE

RUN NO. 10/ D RV/L = 2.83 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/C
5.272	18.154	.35945	.19852	.07665	.40341	-.01630	.67443	.00142	.00048	.00035	1.81081
5.272	22.351	.43985	.25020	.06459	.50064	.00029	.65979	.00151	.00070	-.00020	1.75321
5.272	24.894	.51022	.30819	.06479	.59234	-.00232	.56139	.00089	.00072	-.00033	1.65552
5.272	27.835	.56994	.37677	.06705	.67992	-.00230	.65876	-.00011	.00050	.00044	1.51270
5.272	30.993	.70668	.51164	.07471	.75925	-.00160	.68024	.00170	.00057	-.00035	1.38121
5.272	31.828	.71627	.52442	.07712	.88434	-.00157	.68033	.00159	.00058	-.00043	1.36374
5.272	33.918	.80415	.63933	.08182	1.02406	-.00157	.68199	.00209	.00065	-.00055	1.25781
5.272	37.031	.89073	.78256	.08788	1.18240	-.01341	.66404	.00276	.00041	.00020	1.13822
5.272	40.244	.91975	.88500	.08132	1.27379	-.01265	.65354	.00167	.00064	.00005	1.03926
5.271	43.482	.93124	.95390	.08037	1.35952	-.01947	.65511	.00148	.00056	-.00010	.93695
5.272	GRADIENT	.02343	.03398	.00066	.04127	-.00042	-.00011	.00004	-.00000	-.00000	-.03725

(RBS011) (17 JUL 73)

AMES 3.5-157-0A11A B10C5 D7 F4 N8 NO W87E16 V3R5

PARAMETRIC DATA

ELVN-L = -20.000 ELVN-R = -20.000
SPDRK = 24.920 RUDDER = .000
AILRON = .000 ELEVON = -20.000
BDFLAP = .000 BETA = .000

REFERENCE DATA

MREF = 2890.0000 56. FT. XREF = 1076.4600 IN.
LREF = 474.8000 IN. YREF = .0000 IN.
BREF = 936.6600 IN. ZREF = 400.0000 IN.
SCALE = .0150 SCALE

RUN NO. 11/ D RV/L = 2.43 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/C
5.272	-1.750	-.09196	.09321	.09236	-.09483	-.01844	.59047	-.00221	-.00025	.00062	-.95586
5.272	2.419	-.01723	.06409	.06476	-.01431	-.01786	.21999	-.00199	-.00020	.00056	-.26862
5.272	4.981	.02850	.05132	.04862	.03085	-.01870	.87673	-.00602	.00050	.00090	.51637
5.272	7.874	-.01641	.03983	.04170	-.01079	-.02083	-.02989	-.00069	.00007	-.00012	-.41191
5.191	11.096	.00613	.00338	.00214	-.00667	-.00094	.71048	.00105	.00026	.00011	1.81346
5.272	13.866	.23676	.13681	.07599	.28267	-.02135	.68906	.00136	.00022	.00012	1.73360
5.272	20.283	.38226	.18015	.07771	.36793	-.01840	.67920	.00212	.00040	.00007	1.78898
5.271	23.327	.40951	.23636	.07975	.45605	-.01594	.67232	.00263	.00032	.00009	1.73255
5.272	GRADIENT	.49014	.30117	.08247	.56933	-.01413	.66385	.00244	.00043	-.00012	1.62744
		.01763	-.00661	-.00646	.01873	-.00002	.02982	-.00051	.00000	.00000	.21509

DATE 28 SEP 75

TABULATED SOURCE DATA - ARC 3.5 157

ANES 3.5-157-0A11A B10C5 D7 F4 N8 M5 M87E18 V5R5

(088012) (17 JUL 75)

REFERENCE DATA

SREF = 2890.0000 94.FT. XGRP = 1076.4800 IN.
 LREF = 474.8000 IN. YGRP = .0000 IN.
 BREF = 936.6800 IN. ZGRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 12/ 0 RV/L = 2.62 GRADIENT INTERVAL = -5.00/ 5.00

PARAMETRIC DATA

ELVN-L = .000 ELVN-R = .000
 SPCBRK = 24.920 RUDDER = .000
 ATLRON = .000 ELEVON = .000
 BDFLAP = .000 BETA = .000

MACN	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.272	-1.775	-.07171	.08981	.08755	-.07445	-.03367	.49829	-.00235	-.00043	.00004	-.79842
5.272	2.449	-.00210	.06243	.06247	.00037	-.02883	18.71710	-.00152	-.00010	-.00010	-.03361
5.272	4.909	.05414	.05181	.05181	.02949	-.01794	.87747	-.00765	.00040	.00326	.46079
5.273	7.807	.03904	.03904	.04104	-.01190	-.02057	.04226	-.00010	-.00005	-.00040	-.44489
5.271	10.913	.06641	.06641	.04371	.12403	-.00783	.68256	.00113	.00048	-.00047	1.70931
5.272	13.834	.08016	.14201	.07568	.12969	-.04061	.71566	.00121	.00030	-.00063	1.83237
5.272	16.995	.34820	.18784	.07786	.38790	-.04269	.69934	.00192	.00041	-.00084	1.85367
5.272	20.237	.44284	.24924	.08067	.50172	-.04428	.69154	.00239	.00065	-.00113	1.77677
GRADIENT		.01466	-.00546	-.00341	.01579	.00222	.51867	-.00069	.00011	.00042	.18760

(088013) (17 JUL 75)

ANES 3.5-157-0A11A B10C5 D7 F4 N8 M5 M87E18 V5R5

REFERENCE DATA

SREF = 2890.0000 94.FT. XGRP = 1076.4800 IN.
 LREF = 474.8000 IN. YGRP = .0000 IN.
 BREF = 936.6800 IN. ZGRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 13/ 0 RV/L = 2.64 GRADIENT INTERVAL = -5.00/ 5.00

PARAMETRIC DATA

ELVN-L = .000 ELVN-R = .000
 SPCBRK = 24.920 RUDDER = .000
 ATLRON = .000 ELEVON = .000
 BDFLAP = .000 BETA = .000

MACN	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.272	17.994	.36900	.20661	.07757	.43000	-.04125	.69429	.00201	.00060	.00002	1.86343
5.272	22.220	.46967	.26071	.06374	.53336	-.02880	.67916	.00011	.00096	-.00026	1.80147
5.272	24.766	.59225	.32790	.06637	.63882	-.03919	.68192	-.00022	.00100	-.00040	1.63423
5.272	27.775	.80498	.39331	.06606	.71856	-.03777	.67878	-.00079	.00063	-.00048	1.53814
5.272	30.987	.75367	.54294	.07733	.92581	-.04986	.67925	.00207	.00121	-.00157	1.38849
5.273	33.854	.86101	.67779	.06322	1.09262	-.03957	.67943	.00126	.00130	-.00119	1.27032
5.272	37.063	.93313	.81010	.06491	1.23280	-.07156	.68074	.00086	.00116	-.00106	1.15188
5.273	40.189	.98753	.92703	.06361	1.33734	-.08433	.68259	.00152	.00136	-.00122	1.04369
5.273	43.419	.98936	1.05309	.06469	1.44246	-.09771	.68421	.00363	.00089	-.00123	.93930
GRADIENT		.02641	.03554	.00075	.04300	-.00256	-.00010	.00008	.00002	-.00005	-.02910

DATE 20 SEP 73

TABULATED SOURCE DATA - ARC 3.5 157

APES 3.5-157-0A11A BIDC5 D7 F4 N8 M3 W87E18 VSR5

(RBS014) (17 JUL 73)

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REFERENCE DATA

REF = 2880.0000 88.FT. XREF = 1076.4800 IN.
 LREF = 474.8000 IN. YREF = .0000 IN.
 BREF = 936.6800 IN. ZREF = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 14/ D RV/L = 2.76 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	CL	CD	CA	CN	CLN	XCP/L	CY	CYN	CBL	L/D
5.272	3.4034	.19766	.08236	.18503	-.00977	.68906	.00073	.00017	.00014	1.72282
5.272	18.036	.24646	.06461	.49203	.00263	.65808	.00134	.00061	.00022	1.74775
5.272	22.272	.30325	.06593	.57913	.00048	.65970	.00135	.00032	.00036	1.64147
5.272	24.855	.49777	.00081	-.00113	-.00048	.50672	-.00008	.00020	.00002	-6.76120
5.272	27.471	.00020	.00081	-.00113	-.00048	.50672	-.00008	.00020	.00002	1.50164
5.272	27.973	.37419	.06800	.67157	.00390	.65791	-.00131	.00060	.00009	1.36668
5.272	27.973	.51510	.07920	.86870	.00364	.65849	.00276	.00060	.00009	1.24765
5.272	30.984	.70398	.08486	1.00809	.00940	.65665	.00052	.00016	-.00025	2.25032
5.272	33.621	.83146	.00762	-.00279	-.00119	.50732	.00072	.00021	-.00003	1.12554
5.272	36.474	-.00262	.00287	1.15766	.00326	.65898	.00296	.00032	-.00017	1.02792
5.272	37.034	.77150	.09287	1.15766	.00304	.65855	.00232	.00032	-.00008	.95022
5.272	40.273	.87337	.08005	1.24983	.00504	.66029	.00283	.00056	.00015	.00002
5.272	43.480	.96964	.08312	1.34893	-.00114	.66029	.00283	.00056	.00015	.00002
GRADIENT	.02164	.02972	.00049	.03577	.00026	-.00059	.00009	.00001	-.00002	.02277

REFERENCE DATA

REF = 2880.0000 88.FT. XREF = 1076.4800 IN.
 LREF = 474.8000 IN. YREF = .0000 IN.
 BREF = 936.6800 IN. ZREF = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 15/ D RV/L = 2.71 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	CL	CD	CA	CN	CLN	XCP/L	CY	CYN	CBL	L/D
5.272	30.709	-.00172	.00073	-.00185	-.00049	.56470	.00039	.00004	-.00003	2.34649
5.272	31.135	.70675	.52208	.87489	.00885	.65637	.00108	.00032	.00017	1.35372
GRADIENT	1.60324	1.22738	.19063	2.05828	.02194	.21522	.00162	.00067	.00047	-2.33068

APES 3.5-157-0A11A BIDC5 D7 F4 N8 M3 W87E18 VSR5

(RBS015) (17 JUL 73)

PARAMETRIC DATA

ELVN-L = -40.000 ELVN-R = -40.000
 SPDRK = 24.920 RUDDER = .000
 AILRON = .000 ELEVON = -40.000
 BOFLAP = .000 BETA = .000

PARAMETRIC DATA

ELVN-L = -40.000 ELVN-R = -40.000
 SPDRK = 24.920 RUDDER = .000
 AILRON = .000 ELEVON = -40.000
 BOFLAP = .000 BETA = .000

DATE 08 SEP 75 TABULATED SOURCE DATA - NRC 3.5 157

(RBS018) (17 JUL 75)

AVES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W07E18 V3R5

PARAMETRIC DATA

ELVN-L = -40.000 ELVN-R = -40.000
 SPDCK = 24.920 RUDDER = .000
 AIRLN F = .000 ELEVON = -40.000
 BCFAP = .000 BETA = .000

REFERENCE DATA

SRP = 2090.0000 34.17. XRP = 1076.4800 IN.
 LRP = 474.6000 IN. YRP = .0000 IN.
 BRP = 936.6900 IN. ZRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 16/ 0 RVL = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.273	18.065	.34122	.19756	.06301	.39567	-.01037	.66960	.00253	.00029	.00022	1.72721
5.273	22.285	.45331	.26071	.06558	.52017	.00243	.65832	-.00138	.00077	.00065	1.74639
5.273	24.577	.00039	.00026	.00010	.00047	.00032	.42029	-.00012	.00013	.00000	1.37982
5.273	24.616	.49971	.30286	.06316	.58068	-.00108	.65065	.00156	.00056	.00044	1.64993
5.273	27.821	.56329	.38889	.07171	.69737	-.00059	.65029	-.00013	.00049	.00073	1.49988
5.273	30.715	-.00410	-.00250	-.00005	-.00480	-.00114	.57510	-.00096	.00002	.00005	1.64081
5.272	31.109	.71182	.52455	.08143	.89046	.00961	.65679	.00149	.00039	-.00034	1.35700
5.273	33.849	.60785	.63960	.08313	1.02137	.00795	.5721	.00146	.00078	.00007	1.25210
5.273	36.423	-.00327	-.00307	.00001	-.00654	-.00202	.54964	.00075	.00059	-.00093	1.36146
5.273	36.999	.68353	.78226	.09303	.17639	.00115	.65954	.00237	-.00015	.00018	1.12946
5.272	40.236	.91129	.86443	.08652	1.26696	.00388	.65832	.00185	.00013	.00016	1.03037
5.272	43.436	.92414	.96383	.08822	1.35436	.00361	.65898	.00133	-.00006	.00007	.92988
5.271		.02331	.03069	.02076	.03766	.00039	.00116	.00004	-.00002	-.00002	-.03185

(RBS017) (17 JUL 75)

AVES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W07E18 V3R5

PARAMETRIC DATA

ELVN-L = -40.000 ELVN-R = -40.000
 SPDCK = 24.920 RUDDER = .000
 AIRLN = .000 ELEVON = -40.000
 BCFAP = .000 BETA = .000

REFERENCE DATA

SRP = 2090.0000 34.17. XRP = 1076.4800 IN.
 LRP = 474.6000 IN. YRP = .0000 IN.
 BRP = 936.6900 IN. ZRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 17/ 0 RVL = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.272	-2.293	-.12315	.11522	.11020	-.12766	-.00124	.65652	.00010	-.00092	.00015	-1.06684
5.272	1.866	-.04187	.08378	.08710	-.03905	-.00534	.61114	.00004	-.00061	.00001	-.48808
5.272	4.437	.01296	.06814	.06747	.01823	-.00785	.61365	-.00044	-.00055	.00003	.18867
5.272	7.321	-.02753	.04408	.04723	-.02169	-.01400	.42928	-.00021	-.00020	-.00043	-.62461
5.273	10.592	.11026	.06804	.04661	.12089	-.00416	.67231	.00461	.00148	-.00036	1.62058
5.272	13.349	.22065	.12078	.06658	.24257	-.00755	.67112	.00148	.00111	.00019	1.82682
5.272	16.496	.31037	.17877	.08329	.34835	-.01070	.67097	.00328	.00009	.00011	1.75613
5.271	19.699	.39996	.23252	.08410	.45493	-.01680	.66533	.00355	.00048	.00020	1.72013
5.271	22.893	.48924	.354	.08632	.56762	-.00402	.66252	.00340	.00059	-.00011	1.62768
5.273		.02016	-.00693	-.00627	.02164	-.00098	.02010	-.00007	.00006	-.00002	.18233

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TABULATED SOURCE DATA - ARC 3.5 157

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AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W8TE18 V5R5
(RBS018) (17 JUL 73)

REFERENCE DATA

SRZF = 2890.0000 98.47. XRRP = 1076.4800 IN.
LRRP = 474.8000 IN. YRRP = .0000 IN.
BRRP = 938.6800 IN. ZRRP = 400.0000 IN.
SCALE = .0150 SCALE

RUN NO. 18/ 0 RVL = 2.42 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.273	17.946	.34187	.19571	.09085	.38354	-.00985	.66912	.00029	.00001	.00004	1.74694
5.273	17.946	.34187	.19571	.09085	.38354	-.00985	.66912	.00029	.00001	.00004	1.74694
5.273	22.136	.43226	.24374	.08288	.49224	-.00160	.65893	-.00017	.00043	.00000	1.77346
5.273	24.891	.50065	.30049	.06379	.58058	-.00087	.66053	.00040	.00018	.00018	1.66880
5.272	27.669	.56993	.37561	.06800	.67917	.00077	.65958	-.00120	.00011	.00066	1.51736
5.272	30.948	.71821	.52530	.08116	.88610	.00585	.65753	.00054	.00020	.00017	1.36723
5.273	33.702	.79725	.63532	.08616	1.01579	.00339	.65880	.00014	.00011	.00011	1.25489
5.273	36.839	.87861	.77454	.09311	1.16756	-.00164	.66049	.00018	.00011	.00022	1.13436
5.272	40.058	.91166	.88044	.08717	1.26440	.00080	.65976	-.00051	.00011	-.00027	1.03545
5.272	43.199	.93221	.99404	.08652	1.36002	-.00121	.66031	-.00005	.00004	.00010	.93779
5.271		.02560	.03451	.00091	.04165	.00019	-.00019	.00000	-.00001	-.00001	-.03643

GRADIENT

(RBS019) (17 JUL 73)

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W8TE18 V5R5

REFERENCE DATA

SRZF = 2890.0000 98.47. XRRP = 1076.4800 IN.
LRRP = 474.8000 IN. YRRP = .0000 IN.
BRRP = 938.6800 IN. ZRRP = 400.0000 IN.
SCALE = .0150 SCALE

RUN NO. 19/ 0 RVL = 2.46 GRADIENT INTERVAL = -5.00/ 5.00

PARAMETRIC DATA

ELVN-L = -40.000 ELVN-R = -40.000
SPDRK = 24.920 RUDDR = .000
AILRON = .000 ELEVON = -40.000
BSFLAP = .000 BETA = .000

MACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.273	-2.427	-.12063	.11582	.11081	-.12542	-.00190	.63457	.00035	-.00070	.00013	-.04150
5.272	1.790	-.03777	.08274	.08388	-.03513	-.00821	.59682	.00026	-.00051	.00000	-.45598
5.273	4.340	.01522	.08847	.06713	.02036	-.00862	.81139	.00048	-.00046	.00002	.22226
5.273	7.800	-.03195	.04433	.04768	-.02618	-.01375	.47227	.00030	-.00013	-.00045	-.72574
5.272	10.465	.12950	.07822	.05143	.14119	-.00236	.66395	.00987	.00216	-.00073	1.69905
5.272	13.248	.22505	.13775	.08251	.25063	-.01369	.67952	.00209	.00004	.00009	1.63373
5.272	16.317	.31160	.17770	.08300	.34857	-.01096	.67122	.00267	.00014	.00009	1.75351
5.273	19.328	.40239	.23195	.08410	.45878	-.00884	.66534	.00254	.00033	.00009	1.73483
5.272	22.732	.49112	.29981	.08654	.56366	-.00224	.66140	.00322	.00053	-.00003	1.63810
5.271		.06003	-.00708	-.00642	.02153	-.00100	.01947	-.00002	.00004	-.00002	-.18193

GRADIENT

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TRANSALATED SOURCE DATA --ARC 3.5 197

ANES 3.5-197-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5

PARAMETRIC DATA

ELVN-L = .000 ELVN-R = .000
 SDBRK = 24.920 RUDDER = .000
 ATLON = .000 ELEVON = .000
 BDFLAP = .000 BETA = .000

REFERENCE DATA

SRCP = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.
 LREF = 474.8000 IN. YMRP = .0000 IN.
 BREF = 936.6800 IN. ZMRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 20/ 0 RV/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.275	-2.312	-.06683	.06934	.09637	-.07038	-.03332	.49072	-.00026	-.00047	.00025	-.74803
5.272	1.761	-.07272	.06185	.06190	-.00082	-.02847	-11.77160	-.00131	-.00036	.00007	-.04400
5.273	7.193	-.01847	.03884	.04085	-.01347	-.02014	.12530	-.00038	-.00012	-.00016	-.47562
5.272	10.430	.13461	.07044	.04463	.14523	-.01393	.69429	.00064	.00046	.00005	1.91093
5.272	13.237	.26034	.13815	.07486	.28503	-.03962	.70833	.00054	.00011	-.00018	1.89451
5.273	16.372	.34904	.18258	.07600	.39635	-.04125	.68817	.00107	.00018	-.00020	1.91167
5.272	19.609	.44614	.24291	.07911	.50178	-.04166	.68967	.00090	.00036	-.00032	1.83660
5.272	22.806	.54128	.31727	.08266	.62195	-.04425	.68543	.00120	.00044	-.00049	1.70806
5.271	GRADIENT	.01374	-.00675	-.00806	.01706	.00119	-3.01013	-.00026	.00003	-.00004	.17293

GRS021) (17 JUL 73)

ANES 3.5-197-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5

PARAMETRIC DATA

ELVN-L = .000 ELVN-R = .000
 SDBRK = 24.920 RUDDER = .000
 ATLON = .000 ELEVON = .000
 BDFLAP = .000 BETA = .000

REFERENCE DATA

SRCP = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.
 LREF = 474.8000 IN. YMRP = .0000 IN.
 BREF = 936.6800 IN. ZMRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 21/ 0 RV/L = 2.48 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.272	-2.477	-.07112	.09164	.06848	-.07507	-.03394	.49822	-.00012	-.00033	.00016	-.77607
5.272	1.717	-.06430	.06248	.06256	-.00243	-.02889	-3.59246	-.00012	-.00017	-.00003	-.06886
5.272	7.126	-.01623	.04022	.04193	-.01112	-.01993	.01893	-.00034	-.00002	-.00015	-.40337
5.271	10.430	.13038	.06942	.04467	.14079	-.01303	.69308	-.00173	.00005	.00028	1.87800
5.272	13.197	.26085	.13908	.07585	.28571	-.03981	.70981	-.00016	.00015	-.00016	1.87537
5.272	16.272	.35086	.18329	.07764	.39816	-.04143	.69815	-.00001	.00010	-.00025	1.91427
5.272	19.559	.44779	.24363	.07967	.50352	-.04243	.69012	.00009	.00037	-.00043	1.85798
5.272	22.740	.54347	.31744	.08268	.62393	-.04431	.68538	-.00079	.00037	-.00062	1.71205
5.272	GRADIENT	.01593	-.00695	-.00618	.01731	.00120	-.97532	-.00000	.00004	-.00005	.16865

DATE 20 SEP 73

TABULATED SOURCE DATA - ARC 3.5 157

ANES 3.5-157-0A11A B10C5 D7 F4 N8 M5 W87E18 V5R5

PARAMETRIC DATA

ELVN-L = .000 ELVN-R = .000
SPDRK = 24.920 RUCCER = .000
ATLON = .000 ELEVON = .000
BDPLAP = .000 BETA = .000

REFERENCE DATA

WARP = 2000.0000 98.FT. XARP = 1076.4800 IN.
LWAP = 474.8000 IN. YARP = .0000 IN.
RWAP = 936.6800 IN. ZARP = 400.0000 IN.
SCALE = .0150 SCALE

RUN NO. 22/ 0 RV/L = 2.50 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	ON	CLM	XCP/L	CY	CYN	CBL	L/D
5.272	7.869	.11892	.06009	.06306	.12877	-.03019	.74392	-.00050	.00015	.00006	1.48483
5.272	12.056	.21446	.09953	.05254	.23032	-.02689	.70170	.00014	.00031	.00003	2.15462
5.272	14.626	.24061	.10644	.04417	.26020	-.01695	.65328	-.00139	.00070	.00076	2.21866
5.272	17.581	.26733	.12986	.04304	.29407	-.01661	.60018	.00006	.00043	-.00080	2.05568
5.272	20.900	.28705	.14605	.05545	.32907	-.02699	.67933	.00038	.00083	-.00040	1.94198
5.272	23.872	.31435	.16372	.07483	.36758	-.03746	.68100	-.00002	.00089	-.00057	1.77819
5.272	26.789	.34407	.18247	.09454	.40808	-.05111	.68327	.00006	.00063	-.00013	1.58695
5.272	30.101	.36407	.20247	.11454	.45008	-.06312	.68119	-.00102	.00060	-.00006	1.30783
5.271	33.245	.38494	.22351	.13454	.49208	-.07241	.68169	-.00200	.00042	-.00001	1.02803

(RBS023) (17 JUL 73)

ANES 3.5-157-0A11A B10C5 D7 F4 N8 M5 W87E18 V5R5

PARAMETRIC DATA

ELVN-L = .000 ELVN-R = .000
SPDRK = 24.920 RUCCER = .000
ATLON = .000 ELEVON = .000
BDPLAP = .000 BETA = .000

REFERENCE DATA

WARP = 2000.0000 98.FT. XARP = 1076.4800 IN.
LWAP = 474.8000 IN. YARP = .0000 IN.
RWAP = 936.6800 IN. ZARP = 400.0000 IN.
SCALE = .0150 SCALE

RUN NO. 23/ 0 RV/L = 2.35 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	ON	CLM	XCP/L	CY	CYN	CBL	L/D
5.273	18.082	.30375	.20745	.07748	.43108	-.04123	.69418	.00113	.00024	.00026	1.85945
5.273	22.339	.46977	.26097	.06268	.53370	-.02794	.67810	-.00004	.00058	-.00002	1.80014
5.273	24.830	.52855	.31325	.06234	.61123	-.03043	.67779	.00020	.00068	-.00140	1.68734
5.272	27.754	.60477	.39118	.06454	.71736	-.03665	.67825	-.00076	.00011	.00006	1.54802
5.191	30.820	.67064	.46097	.06701	.80005	-.04072	.69489	.00057	.00018	.00012	.65853
5.274	31.116	.75355	.54312	.07556	.92590	-.04911	.67857	.00090	.00059	-.00070	1.38744
5.272	33.778	.84950	.66550	.08008	1.07610	-.05543	.67841	.00108	.00077	-.00027	1.27649
5.272	36.918	.94527	.82461	.09148	1.25105	-.07358	.68102	.00108	.00056	.00031	1.14612
5.272	40.149	.96408	.91959	.09129	1.32985	-.07678	.68053	.00032	.00060	-.00047	1.04818
5.271	43.341	.98311	1.03991	.08148	1.42866	-.08900	.68226	.00143	.00044	-.00051	.94527
		.02707	.03592	.00080	.04373	-.07241	-.00030	-.00001	.00001	-.00001	-.03883

AVES 3.5-157-0A11A BIDC5 D7 F4 NS NS WYTE18 VSR5

(RBS024) (17 JUL 75)

PARAMETRIC DATA

ELVN-L = 10.000 ELVN-R = 10.000
 SPCSRK = 24.920 RUDDER = .000
 AILRON = .000 ELEVON = 10.000
 BOFLAP = .000 BETA = .000

REFERENCE DATA

WREF = 2690.0000 54. FT. XWRP = 1076.4800 IN.
 LREF = 474.8000 IN. YWRP = .0000 IN.
 BREF = 936.6800 IN. ZWRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 24/ 0 RNVL = 2.36 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.272	16.198	.41886	.22948	.01719	.46947	-.07133	.71430	.00156	.00049	.00040	1.82527
5.272	22.332	.49979	.28438	.07314	.57036	-.06412	.70018	.00083	.00068	-.00017	1.75749
5.272	24.847	.55047	.33518	.07285	.64035	-.07048	.69934	.00761	.00113	-.00307	1.64229
5.273	27.825	.62638	.41844	.07675	.75104	-.07991	.69803	.00759	.00095	-.00255	1.50174
5.191	30.717	-.00140	.00003	.00769	-.00122	.00106	.67680	-.00126	.00067	-.00008	40.54990
5.274	31.208	.80176	.59483	.09332	.99395	-.09007	.69553	.00053	.00000	-.00000	1.34789
5.272	33.835	.88054	.70995	.09942	1.12672	-.11100	.69521	-.00052	.00046	-.00041	1.24028
5.271	36.939	.95614	.84900	.10398	1.27444	-.12513	.69509	.00082	.00072	-.00051	1.12620
5.271	40.155	.99662	.98018	.11646	1.39380	-.14113	.69619	.00005	.00049	-.00027	1.01678
5.271	43.228	1.03212	1.11857	.10319	1.51815	-.15403	.69626	.00104	-.00004	-.00050	.92271
5.272	GRADIENT	.02749	.03802	.00148	.04549	-.00384	-.00032	-.00014	-.00202	.00002	-.05338

(RBS025) (17 JUL 75)

AVES 3.5-157-0A11A BIDC5 D7 F4 NS NS WYTE18 VSR5

PARAMETRIC DATA

ELVN-L = 10.000 ELVN-R = 10.000
 SPCSRK = 24.920 RUDDER = .000
 AILRON = .000 ELEVON = 10.000
 BOFLAP = .000 BETA = .000

REFERENCE DATA

WREF = 2690.0000 54. FT. XWRP = 1076.4800 IN.
 LREF = 474.8000 IN. YWRP = .0000 IN.
 BREF = 936.6800 IN. ZWRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 25/ 0 RNVL = 2.40 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.272	-2.156	-.06289	.09210	.08967	-.06631	-.04101	.43885	-.00032	-.00018	.00017	-.68282
5.273	2.050	.00802	.06789	.06756	.01044	-.03758	1.94644	-.00041	-.00010	-.00000	.11814
5.273	4.594	.05046	.06432	.08007	.05545	-.03415	.88015	-.00040	-.00015	.00034	.78459
5.272	7.446	.00233	.04424	.04356	.00803	-.03286	2.12026	.00080	.00007	.00027	.05272
5.191	10.685	.01253	.00208	-.00028	.01270	-.00059	.67666	.00711	.00036	.00025	6.01284
5.272	13.492	.26941	.15498	.08318	.31758	-.06341	.73138	.00097	.00037	.00006	1.86735
5.272	16.689	.38202	.20495	.08662	.42478	-.06978	.71872	.00108	.00039	.00011	1.86391
5.271	19.856	.47772	.26876	.09052	.54051	-.07591	.71019	.00030	.00059	-.00016	1.77747
5.271	23.014	.57088	.34632	.09537	.66083	-.08289	.70484	-.00036	.00058	-.00001	1.64843
5.272	GRADIENT	.01680	-.00428	-.00447	.01806	.00100	.09474	.00002	.00001	.00002	-.21469

DATE 20 SEP 73

TABLED SOURCE DATA - ARC 3.5 157

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W8E18 V8R5

PARAMETRIC DATA

ELVN-L = 5.000 ELVN-R = -5.000
 SPDRK = 24.920 RUDDER = .000
 AILRON = 5.000 ELEVON = .000
 BCLAP = .000 BETA = .000

REFERENCE DATA

SRF = 2690.0000 SQ.FT. XPRP = 1076.4800 IN.
 LREF = 474.8000 IN. YPRP = .0000 IN.
 BREF = 936.6000 IN. ZPRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 26/ 0 RV/L = 2.40 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.272	-2.149	-.07134	.09130	.06856	-.07472	-.03395	.49755	.00160	-.00039	.00139	-.78147
5.273	2.080	-.00305	.06276	.06283	-.00077	-.02909	-12.86950	.00135	-.00038	.00139	-.04857
5.272	4.567	.03437	.05794	.05522	.03887	-.02307	.87216	.00282	-.00034	.00021	.59311
5.272	7.444	-.01499	.04085	.04245	-.00957	-.02083	-.11779	.00123	-.00006	.00146	-.36697
5.191	10.699	.00499	.00307	.00112	.00519	-.00012	.66822	.00220	.00222	.00007	2.36587
5.272	13.474	.26149	.14121	.07639	.28713	-.04034	.71046	.00359	-.00225	.00342	1.85181
5.272	16.599	.35042	.18617	.07831	.38901	-.04235	.69891	.00465	-.00029	.00411	1.82219
5.271	19.808	.44195	.24477	.08052	.49875	-.04374	.69134	.00481	-.00032	.00469	1.80558
5.271	22.972	.53320	.31634	.08334	.61446	-.04605	.68679	.00442	-.00043	.00532	1.68247
GRADIENT		.01576	-.00516	-.00511	.01697	.00157	-.28649	.00016	.00001	-.00016	.20132

(RBS026) (17 JUL 73)

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W8E18 V8R5

PARAMETRIC DATA

ELVN-L = -5.000 ELVN-R = -15.000
 SPDRK = 24.920 RUDDER = .000
 AILRON = 5.000 ELEVON = -10.000
 BCLAP = .000 BETA = .000

REFERENCE DATA

SRF = 2690.0000 SQ.FT. XPRP = 1076.4800 IN.
 LREF = 474.8000 IN. YPRP = .0000 IN.
 BREF = 936.6000 IN. ZPRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 27/ 0 RV/L = 2.58 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.272	-2.109	-.07977	.09171	.06871	-.08309	-.02715	.54316	.00195	-.00013	.00167	-.86981
5.272	2.115	-.00923	.06107	.06137	-.00697	-.02388	-.56438	.00165	-.00019	.00123	-.15119
5.272	4.628	.02809	.05151	.04922	.03045	-.02035	.89896	-.00724	.00075	.00332	.51222
5.272	7.511	-.01954	.03876	.04099	-.01430	-.02069	.14290	.00071	-.00010	.00028	-.50405
5.272	10.786	.12006	.06302	.04435	.13067	-.00750	.68050	.00098	.00060	.00071	1.76511
5.272	13.801	.24566	.13626	.07487	.27082	-.02842	.69751	.00369	.00021	.00177	1.80285
5.272	16.717	.33073	.17849	.07581	.36809	-.02725	.68645	.00460	.00023	.00212	1.85294
5.272	19.941	.42083	.23468	.07708	.47564	-.02495	.67874	.00509	.00024	.00245	1.79325
5.272	23.160	.50943	.30375	.07891	.58784	-.02369	.67740	.00506	.00041	.00283	1.67715
GRADIENT		.01586	-.00610	-.00593	.01698	.00098	.02004	-.00123	.00012	.00021	.20155

(RBS027) (17 JUL 73)

DATE 20 SEP 73

TABULATED SOURCE DATA - ARC 3.5 157

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AVES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W8TE18 V5R5

(RBS026) (17 JUL 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XGRP = 1076.4800 IN.
 LREF = 474.6000 IN. YGRP = .0000 IN.
 BREF = 936.6800 IN. ZGRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 28/ D RV/L = 2.65 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.272	-2.095	-.08928	.09346	.09014	-.09244	-.02161	.57640	-.00577	-.00029	.00119	-.95319
5.272	2.066	-.01693	.06250	.06307	-.01466	-.01963	.18151	-.00536	-.00032	.00057	-.27085
5.272	4.626	.09031	.05186	.04924	.03439	-.02027	.87071	-.00627	.00018	.00006	.58442
5.272	7.517	-.01833	.03831	.04038	-.01316	-.02166	.07157	-.00144	-.00041	-.00039	-.47853
5.272	10.658	.11048	.06590	.04434	.12076	-.00792	.68344	-.00497	-.00033	.00000	1.67633
5.272	13.613	.23612	.13359	.07426	.26093	-.02365	.69239	-.00202	-.00031	.00020	1.76760
5.272	16.740	.31989	.17551	.07593	.35698	-.02165	.68168	-.00136	-.00033	.00019	1.82266
5.272	19.988	.40854	.23074	.07719	.46280	-.01808	.67396	-.00180	-.00019	.00002	1.77061
5.272	23.181	.49363	.29691	.07883	.57062	-.01508	.66944	-.00157	-.00003	-.00003	1.66255
5.272	GRADIENT	-.01772	-.00631	-.00612	.01885	.00023	.03042	-.00006	.00006	-.00017	.22249

AVES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W8TE18 V5R5

(RBS029) (17 JUL 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XGRP = 1076.4800 IN.
 LREF = 474.6000 IN. YGRP = .0000 IN.
 BREF = 936.6800 IN. ZGRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 29/ D RV/L = 2.60 GRADIENT INTERVAL = -5.00/ 5.00

PARAMETRIC DATA

MACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.272	17.458	.35579	.19176	.07618	.55693	-.01893	.57704	-.00175	.00002	.00059	1.85542
5.272	21.576	.43137	.23835	.06305	.48879	-.00172	.66125	-.00103	.00011	.00007	1.80979
5.272	24.199	.51026	.29863	.06325	.58783	-.00524	.66318	-.00104	-.00005	-.00014	1.73868
5.272	27.133	.56319	.36079	.06424	.66576	-.00076	.66040	-.00249	-.00024	.00078	1.56096
5.272	30.349	.70575	.49549	.07100	.89939	-.00227	.66094	-.00049	.00004	-.00028	1.42435
5.272	33.204	.80834	.62251	.07821	1.01726	-.00823	.66288	-.00121	-.00009	.00055	1.29651
5.272	36.426	.89582	.76556	.08405	1.17538	-.01727	.66524	-.00114	-.00024	.00105	1.17016
5.272	39.588	.93051	.86821	.07610	1.27037	-.01654	.66465	-.00114	-.00045	.00072	1.07177
5.272	42.833	.94155	.97378	.07398	1.35251	-.02339	.66617	-.00063	-.00041	.00066	.96690
5.272	GRADIENT	.02604	.03333	.00045	.04126	-.00049	-.00016	.00003	-.00002	.00002	-.03808

PARAMETRIC DATA

ELVN-L = -15.000 ELVN-R = -25.000
 SPOBRK = 24.920 RUDDER = .000
 AILRON = 5.000 ELEVON = -20.000
 BDFLAP = .000 BETA = .000

DATE 20 SEP 75

TABULATED SOURCE DATA - ARC 3.5 157

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5

PARAMETRIC DATA

ELVN-L = -5.000 ELVN-R = -15.000
SPDRK = 24.920 RUDDER = .000
AILRON = 5.000 ELEVON = -10.000
BFLAP = .000 BETA = .000

RUN NO. 30/ 0 RV/L = 2.83 GRADIENT INTERVAL = -5.00/ 5.00

REFERENCE DATA

WREF = 2880.0000 SQ.FT. XWRP = 1076.4800 IN.
LWRP = 474.8000 IN. YWRP = .0000 IN.
BWRP = 936.6800 IN. ZWRP = 400.0000 IN.
SCALE = .0150 SCALE

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CIN	CBL	L/D
5.272	17.391	.36571	.19353	.07538	.40693	-.02603	.68287	-.00323	-.00040	.00173	1.88965
5.273	21.696	.44471	.24292	.06138	.50300	-.00933	.66662	-.00072	-.00036	.00178	1.83072
5.273	24.219	.52716	.30520	.06208	.60597	-.01615	.66932	-.00108	-.00084	.00154	1.72728
5.273	27.196	.57632	.36728	.06325	.68046	-.01272	.66668	-.00091	-.00086	.00267	1.56916
5.272	30.288	.72191	.50447	.07182	.87777	-.01777	.66723	-.00085	-.00122	.00260	1.43102
5.272	33.279	.82430	.63450	.07813	1.03728	-.02511	.66864	-.00020	-.00118	.00347	1.29914
5.273	36.369	.91499	.77904	.08430	1.19875	-.03679	.67096	-.00100	-.00122	.00425	1.17451
5.273	39.626	.94223	.87785	.07922	1.28560	-.03799	.67056	-.00143	-.00180	.00427	1.07334
5.273	42.777	.95595	.93451	.07339	1.37030	-.04804	.67252	-.00109	-.00161	.00477	.97099
5.272	GRADIENT	.02618	.03373	.00048	.04158	-.00121	-.00015	.00013	-.00006	.00014	-.03928

(RBS031) (17 JUL 75)

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5

PARAMETRIC DATA

ELVN-L = 5.000 ELVN-R = -5.000
SPDRK = 24.920 RUDDER = .000
AILRON = 5.000 ELEVON = .000
BFLAP = .000 BETA = .000

RUN NO. 31/ 0 RV/L = 2.54 GRADIENT INTERVAL = -5.00/ 5.00

REFERENCE DATA

WREF = 2880.0000 SQ.FT. XWRP = 1076.4800 IN.
LWRP = 474.8000 IN. YWRP = .0000 IN.
BWRP = 936.6800 IN. ZWRP = 400.0000 IN.
SCALE = .0150 SCALE

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CIN	CBL	L/D
5.273	17.002	.38996	.19990	.07714	.43137	-.04194	.69475	.00071	-.00089	.00422	1.95072
5.273	21.273	.46939	.25101	.05360	.52848	-.03002	.68030	.00263	-.00075	.00447	1.87005
5.273	23.861	.52013	.29704	.06126	.59383	-.03108	.67864	.01120	-.00111	.00249	1.75100
5.273	26.920	.61246	.38495	.06595	.72038	-.03907	.67938	.00414	-.00171	.00602	1.59104
5.273	30.214	.76408	.53544	.07819	.92973	-.04874	.67873	.00538	-.00205	.00629	1.42701
5.273	32.843	.85972	.65411	.08329	1.07706	-.05754	.67909	.00694	-.00224	.00706	1.31433
5.273	35.908	.94409	.79188	.08769	1.22911	-.07101	.68064	.00575	-.00245	.00817	1.19221
5.273	39.289	.97987	.91012	.08392	1.33470	-.08029	.68150	.00634	-.00276	.00862	1.07664
5.273	42.236	.99998	1.02367	.08419	1.42836	-.09126	.68283	.00588	-.00291	.00868	.97687
5.272	GRADIENT	.02728	.03512	.00084	.04321	-.00238	-.00023	.00013	-.00009	.00023	-.04129

(RBS031) (17 JUL 75)

DATE 20 SEP 73

TABULATED SOURCE DATA - ARC 3.5 157

AMES 3.5-157-0-11A BIDCS D7 F4 N8 W87E18 V5R5

(RBS032) (17 JUL 73)

REFERENCE DATA

SRCP = 2090.0000 90.FT. XPRP = 1076.4800 IN.
 LREF = 474.8000 IN. YPRP = .0000 IN.
 BRCP = 936.6800 IN. ZPRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 32/ 0 RV/L = 2.61 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.272	17.386	.58658	.19694	.07431	.42834	-.04052	.69381	-.00354	-.00011	-.00039	1.94305
5.272	21.592	.46358	.25227	.06391	.52386	-.02609	.67984	-.00274	.00013	-.00093	1.83760
5.272	24.135	.40345	.20930	.06131	.56920	-.02691	.67081	.00245	.00366	-.00238	1.71160
5.272	27.145	.59458	.37042	.06663	.70309	-.03686	.67873	.02413	.00031	-.00220	1.56972
5.272	30.138	.74521	.52793	.07615	.90602	-.04776	.67085	-.00292	-.00010	-.00124	1.43052
5.271	30.431	.75000	.53100	.07014	.91568	-.04318	.67139	-.00172	-.00001	-.00157	1.41220
5.272	33.052	.85052	.60145	.08215	1.06810	-.05404	.67339	-.00311	-.00012	-.00111	1.30560
5.272	36.390	.94691	.67971	.09273	1.24264	-.07202	.67071	-.00281	-.00003	-.00078	1.16944
5.272	39.490	.95958	.89735	.08218	1.31190	-.07678	.67133	-.00255	.00013	-.00127	1.06936
5.272	42.692	.99132	1.03375	.09215	1.42237	-.08141	.68061	-.00223	.00012	-.00149	.95806
GRADIENT		.02713	.03532	.01145	.04230	-.00238	-.00001	-.00026	-.00001	-.00001	-.04069

(RBS033) (17 JUL 73)

AMES 3.5-157-0-11A BIDCS D7 F4 N8 W87E18 V5R5

REFERENCE DATA

SRCP = 2090.0000 90.FT. XPRP = 1076.4800 IN.
 LREF = 474.8000 IN. YPRP = .0000 IN.
 BRCP = 936.6800 IN. ZPRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 33/ 0 RV/L = 2.61 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.273	-2.787	-.08126	.08273	.07645	-.06321	-.04036	.43862	-.00238	-.00028	.00009	-.74051
5.273	1.447	.00190	.06022	.08615	.01342	-.03142	3.94183	-.00161	-.00023	.00028	.03161
5.273	4.040	-.00134	.01298	.04695	.00198	-.01515	3.40050	-.00764	-.00087	.00031	-.02874
5.273	6.914	-.01845	.04100	.04292	-.01339	-.02044	.11418	.00041	.00000	-.00000	-.45027
5.273	9.559	.10298	.06535	.04616	.11373	-.01422	.70469	.00152	.00081	-.00020	1.59117
5.271	10.227	.12738	.06997	.04103	.13345	-.00341	.66913	.00090	.00030	-.00026	1.75746
5.273	12.849	.23997	.13449	.07131	.28337	-.03959	.70994	.00060	.00038	-.00009	1.93015
5.273	16.006	.34938	.17790	.07165	.38409	-.04167	.69776	.00183	.00041	-.00025	1.96397
5.273	19.221	.44014	.23468	.07070	.49286	-.04153	.69012	.00091	.00061	-.00043	1.87546
5.273	22.497	.53366	.30791	.08127	.61086	-.04260	.68610	.00151	.00070	-.00059	1.75318
GRADIENT		.00338	-.00524	-.00177	.01046	.01254	.47222	-.00068	-.00008	.00003	.11191

PARAMETRIC DATA

ELVN-L = .000 ELVN-R = .000
 SPOBRK = 24.920 RUDDER = .000
 AIRCON = .000 ELEVON = .000
 BDCLAP = .000 BETA = .000

PARAMETRIC DATA

ELVN-L = .000 ELVN-R = .000
 SPOBRK = 24.920 RUDDER = .000
 AIRCON = .000 ELEVON = .000
 BDCLAP = .000 BETA = .000

(RBS034) (17 JUL 75)

TABULATED SOURCE DATA - ARC 3.5 157

AVES 3.5-157-0A11A B10C5 D7 F4 NS M87E18 V5R5

PARAMETRIC DATA

ELVN-L = .000 ELVN-R = .000
 SPDSRK = 24.920 RUDDER = .000
 AIRCON = .000 ELEVON = .000
 BDFLAP = .000 BETA = .000

REFERENCE DATA

SREF = 2893.0000 SQ.FT. XMRP = 1076.4800 IN.
 LREF = 474.6000 IN. YMRP = .0000 IN.
 BREF = 936.6800 IN. ZMRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 34/ 0 RN/L = 1.54 GRADIENT INTERVAL = -5.00/ 5.00

MAOH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.191	.033	-.00248	-.00184	-.00183	-.00246	-.00072	.55636	-.00226	.00108	-.00022	1.34880
5.273	1.088	.00272	.07264	.07258	.00410	-.02871	3.16489	-.00481	-.00027	-.00001	.03742
5.191	2.606	.00000	.00000	.00000	.00000	.00000	.65999	.00000	-.00000	-.00000	.00000
5.191	5.869	.00000	.00000	.00000	.00000	.00000	.65999	.00000	.00000	.00000	.00000
5.191	4.943	.00000	.00000	.00000	.00000	.00000	.65999	.00000	.00000	.00000	.00000
5.191	5.970	.00000	.00000	.00000	.00000	.00000	.65999	.00000	.00000	.00000	.00000
5.191	7.012	.00000	.00000	.00000	.00000	.00000	.65999	.00000	.00000	.00000	.00000
5.191	8.145	.00000	.00000	.00000	.00000	.00000	.65999	.00000	.00000	.00000	.00000
5.191	9.085	.00000	.00000	.00000	.00000	.00000	.65999	.00000	.00000	.00000	.00000
5.191	10.131	.00000	.00000	.00000	.00000	.00000	.65999	.00000	.00000	.00000	.00000
5.191	11.848	.00000	.00000	.00000	.00000	.00000	.65999	.00000	.00000	.00000	.00000
GRADIENT		.00014	-.00619	-.00618	.00002	.00267	-.20709	.00278	-.00014	.00003	-.21284

(RBS035) (17 JUL 75)

AVES 3.5-157-0A11A B10C5 D7 F4 NS M87E18 V5R5

PARAMETRIC DATA

ELVN-L = .000 ELVN-R = .000
 SPDSRK = 24.920 RUDDER = -10.000
 AIRCON = .000 ELEVON = .000
 BDFLAP = .000 BETA = .000

REFERENCE DATA

SREF = 2893.0000 SQ.FT. XMRP = 1076.4800 IN.
 LREF = 474.6000 IN. YMRP = .0000 IN.
 BREF = 936.6800 IN. ZMRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 35/ 0 RN/L = 2.62 GRADIENT INTERVAL = -5.00/ 5.00

MAOH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.273	-2.619	-.00854	.09218	.08895	-.07268	-.03350	.93250	-.00785	.00238	-.00123	-.74353
5.273	1.475	-.00371	.06314	.06322	-.00208	-.02826	-4.19996	-.00688	.00189	-.00112	-.05868
5.273	4.082	.03580	.05370	.05602	.03986	-.02291	86548	-.00594	.00167	-.00112	.60990
5.273	6.886	-.01656	.04039	.04208	-.01160	-.02003	.04264	-.00068	-.00006	-.00015	-.41006
5.273	9.891	.11411	.06511	.04397	.12753	-.01098	.69076	-.00306	-.00044	.00029	1.81410
5.274	10.095	.12710	.06785	.04455	.13702	-.00622	.67623	-.00286	-.00055	.00016	1.87328
5.273	12.934	.25717	.13639	.07586	.28104	-.03853	.75901	-.00266	-.00142	-.00100	1.92334
5.273	15.939	.34383	.17677	.07748	.37971	-.04011	.69776	-.00214	.00139	-.00120	1.93334
5.273	19.178	.43769	.25642	.07952	.49107	-.04188	.69048	-.00130	.00134	-.00131	1.85130
5.271	22.375	.52897	.30756	.08304	.60522	-.04437	.68616	-.00020	.00132	-.00151	1.71992
GRADIENT		.01566	-.00521	-.00506	.01690	.00156	-.05448	.00028	-.00011	.00002	-.19963

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TABULATED SOURCE DATA - ARC 3.5 157

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AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5

(R85036) (17 JUL 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.
 LREF = 474.8000 IN. YMRP = .0000 IN.
 BREF = 936.6000 IN. ZMRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 36/ 0 RN/L = 2.43 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
7.320	.322	.01476	.00507	.00498	.01479	-.00112	.68718	-.00100	.00107	.00053	2.91361
7.320	3.000	.00795	.07321	.07269	.01178	-.02679	1.33420	.00572	.00069	.00014	-.10966
7.320	6.082	.05458	.07630	.07008	.06236	-.02703	.81499	.00315	.00003	.00000	.71537
7.320	9.337	.11352	.08569	.06910	.12641	-.02743	.73758	.00488	.00122	.00024	1.27993
7.320	12.439	.18076	.11028	.06375	.20027	-.02785	.70972	.00560	.00134	.00022	1.63915
7.320	15.906	.25516	.14285	.06944	.28406	-.02735	.69441	.00608	.00124	.00050	1.76615
7.320	GRADIENT	-.02054	.02544	.02528	-.00113	-.01033	.31625	.00251	-.00014	-.00015	-1.04732

PARAMETRIC DATA

ELVN-L = .000 ELVN-R = .000
 SPCBRK = 24.920 RUDDER = .000
 AILRON = .000 ELEVON = .000
 BOFLAP = .000 BETA = .000

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5

(RDS040) (17 JUL 73)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.4800 IN.
 LREF = 474.8000 IN. YMRP = .0000 IN.
 BREF = 936.6000 IN. ZMRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 40/ 0 RN/L = 2.29 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
7.320	-2.751	-.05693	.09321	.09038	-.06133	-.03529	.45430	-.00082	-.00029	-.00007	-.61069
7.320	.051	-.01720	.08083	.08085	-.01713	-.03328	-.03466	-.00147	.00020	-.00022	-.21282
7.320	2.010	.01237	.08009	.07961	.01518	-.03102	1.39088	-.00074	.00002	-.00026	.15449
7.320	4.963	.06110	.06223	.07664	.06798	-.03168	.82660	-.00103	.00012	-.00022	.74300
7.320	7.992	.12090	.09372	.07600	.13276	-.03574	.75824	-.00087	.00024	-.00038	1.29009
7.320	11.148	.19370	.11648	.07683	.21257	-.04178	.73027	-.00086	.00037	-.00030	1.66302
7.320	14.067	.26997	.14897	.07889	.29808	-.04628	.71551	-.00086	.00060	-.00070	1.81218
7.320	17.212	.35346	.19556	.08221	.39549	-.04995	.70315	-.00089	.00074	-.00100	1.80743
7.320	20.244	.43065	.24946	.08503	.49036	-.05326	.69893	-.00078	.00070	-.00109	1.72635
7.320	GRADIENT	.01530	-.00134	-.00170	.01676	.00051	.08933	-.00000	.00004	-.00002	.17642

PARAMETRIC DATA

ELVN-L = 10.000 ELVN-R = 10.000
 SPCBRK = 54.920 RUDDER = .000
 AILRON = .000 ELEVON = 10.000
 BOFLAP = .000 BETA = .000

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(RBS041) (17 SEP 73)

TABULATED SOURCE DATA - ARC 3.5 157
AWES 3.5-157-0A11A B10C5 DT F4 N8 N3 W8TE18 VSR5

REFERENCE DATA

SRCP = 1000.0000 24.1 FT. XPRP = 1076.4800 IN.
LRCP = 474.8000 IN. YPRP = .0000 IN.
BRCP = 936.6800 IN. ZPRP = 400.0000 IN.
SCALE = .0150 SCALE

RN/L = 2.15 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
7.360	-2.806	-1.1107	.13684	.13324	-.11773	-.00968	.62999	.01395	-.00301	-.00125	-.79995
	1.867	-.03606	.11437	.11555	-.03431	-.00948	.56125	.01135	-.00269	-.00098	-.33273
	4.864	.00640	.10996	.10876	.01673	-.00862	.82458	.00989	-.00248	-.00073	.09548
	7.869	.06371	.11474	.10491	.07685	-.00763	.69347	.00956	-.00236	-.00063	.55526
	10.962	.12930	.12965	.10292	.15162	-.00761	.67793	.00825	-.00226	-.00042	.99561
	13.913	.19653	.15437	.10230	.22987	-.00540	.66839	.00763	-.00222	-.00028	1.28435
	17.071	.27465	.19207	.10299	.31693	-.00790	.65898	.00777	-.00214	-.00022	1.42991
	20.095	.34550	.23773	.10455	.40614	.00665	.65413	.00789	-.00220	-.00015	1.45330
GRADIENT		.01566	-.00368	-.00323	.01775	.00016	.02187	-.00033	.00007	.00007	.11384

REFERENCE DATA

SRCP = 2000.0000 24.1 FT. XPRP = 1076.4800 IN.
LRCP = 474.8000 IN. YPRP = .0000 IN.
BRCP = 936.6800 IN. ZPRP = 400.0000 IN.
SCALE = .0150 SCALE

RN/L = 2.43 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
7.360	-2.814	-.07628	.09640	.15211	-.06092	-.02352	.55806	.00253	-.00002	.00047	-.79124
	1.919	-.00749	.07905	.07926	-.00484	-.01619	-.66324	.00130	.00004	.00037	-.09481
	4.918	.03953	.07647	.07479	.04611	-.01319	.77773	.00072	-.00001	.00042	.50376
	7.968	.09293	.08647	.07275	.10402	-.01325	.70553	-.00008	.00010	.00044	1.07474
	11.043	.15715	.10393	.07190	.17414	-.01150	.68360	.00016	.00014	.00046	1.51204
	14.050	.22750	.13124	.07213	.25236	-.00766	.67084	.00025	.00025	.00046	1.73198
	17.276	.30300	.17055	.07287	.33998	-.00142	.66148	-.00036	.00027	.00051	1.77664
	19.877	.35931	.20832	.07374	.40873	.00307	.65660	.00020	.00020	.00054	1.72481
GRADIENT		.01494	-.00244	-.00234	.01640	.00108	.00251	-.00024	.00000	-.00001	.16564

(RBS042) (17 SEP 73)

PARAMETRIC DATA

ELVN-L = -20.000 ELVN-R = -20.000
SPORR = 54.920 RUDDER = .000
AIRON = .000 ELEVON = -20.000
BOFLAP = .000 BETA = .000

ELVN-L = -20.000 ELVN-R = -20.000
SPORR = 54.920 RUDDER = .000
AIRON = .000 ELEVON = -20.000
BOFLAP = .000 BETA = .000

DATE 20 SEP 73

TABLED SOURCE DATA - ARC 3.5 157

AVES 3.5-157-0A11A B10C5 D7 F4 N8 M5 W8TE16 V5R5

PARAMETRIC DATA

REFERENCE DATA

MACH = 7.320
 REF = 2890.0000 SQ.FT.
 LREF = 474.8000 IN.
 BREF = 936.6800 IN.
 SCALE = .0150 SCALE
 XREF = 1076.4800 IN.
 YREF = .0000 IN.
 ZREF = 400.0000 IN.
 ELVN-L = .000
 SPDRK = 54.920
 AIRON = .000
 BOFLAP = -14.750
 ELVN-R = .000
 RUDDER = .000
 ELEVON = .000
 BETA = .000

RUN NO. 45/ 0 RNVL = 2.82 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
7.320	-2.806	-.06394	.09319	.06995	-.06843	-.03204	.49256	.00233	.00000	.00002	-.68611
7.320	-.004	-.02705	.07774	.07774	-.02706	-.02709	.30202	.00189	.00008	.00003	-.34800
7.320	1.939	.07775	.07775	.07764	.00461	-.02440	2.55182	.00114	-.00002	.00004	.02349
7.320	4.943	.04801	.07807	.07364	.05456	-.02131	.79965	.00028	.00011	.00010	.61506
7.320	7.981	.10310	.08692	.07176	.11417	-.02054	.72432	-.00016	.00018	.00000	1.18620
7.320	11.023	.16875	.10551	.07130	.18579	-.02018	.69882	-.00068	.00028	-.00012	1.59920
7.320	14.012	.23997	.13362	.07155	.26518	-.01856	.68501	-.00103	.00039	-.00025	1.79384
7.320	17.181	.31791	.17426	.07258	.35520	-.01503	.67512	-.00131	.00041	-.00016	1.82427
7.320	20.176	.38754	.22143	.07417	.44013	-.01324	.67074	-.00130	.00036	-.00037	1.75019
7.320	GRADIENT	.01448	-.00181	-.00197	.01590	.00138	.10328	-.00027	.00031	.00001	.16966

(RBS044) (17 SEP 73)

PARAMETRIC DATA

REFERENCE DATA

MACH = 7.320
 REF = 2890.0000 SQ.FT.
 LREF = 474.8000 IN.
 BREF = 936.6800 IN.
 SCALE = .0150 SCALE
 XREF = 1076.4800 IN.
 YREF = .0000 IN.
 ZREF = 400.0000 IN.
 ELVN-L = -40.000
 SPDRK = 54.920
 AIRON = .000
 BOFLAP = -14.750
 ELVN-R = -40.000
 RUDDER = .000
 ELEVON = -40.000
 BETA = .000

RNVL = 2.55 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
7.320	-2.788	-.10319	.11300	.10785	-.10856	-.00733	.63584	.00320	-.00070	-.00064	-.91317
7.320	1.931	-.02653	.08777	.08861	-.02356	-.00694	.55456	.00304	-.00050	-.00040	-.30231
7.320	4.903	.02034	.08417	.08212	.02746	-.00556	.73241	.00144	-.00027	-.00019	.24164
7.320	7.966	.07625	.08928	.07782	.08791	-.00415	.67685	.00088	-.00016	-.00001	.65003
7.320	11.070	.14281	.10526	.07588	.16036	-.00295	.66657	.00025	-.00002	.00010	1.35670
7.320	14.009	.21301	.13020	.07478	.23819	.00069	.63896	-.00006	.00006	.00025	1.63599
7.320	17.178	.28829	.16793	.07529	.32502	.00795	.63124	.00031	.00006	.00031	1.71678
7.320	20.199	.35586	.21210	.07620	.40723	.01460	.64718	.00034	.00001	.00035	1.67795
7.320	GRADIENT	.01608	-.00390	-.00341	.01772	.00022	.00984	-.00049	.00015	.00006	.14827

(R8S045) (17 JUL 77)

TABULATED SOURCE DATA - ARC 3.5 197

AVES 3.5-157-0A11A 810C5 D7 F4 N8 M8 W8Y1E18 V8R5

DATE 20 SEP 73

REFERENCE DATA

SREF = 8880.0000 88.171. XREF = 1076.4800 IN.
LREF = 474.8000 IN. YREF = .0000 IN.
BREF = 936.8800 IN. ZREF = 400.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

ELVN-L = -20.000 ELVN-R = -20.000
SPORR = 54.920 RUDDER = .000
AILRON = .000 ELEVON = -20.000
BOFLAP = -14.750 BETA = .000

RUN NO. 45/ 0 RV/L = 2.80 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	COL	L/D
7.320	-2.875	-.07773	.08674	.10272	-.08249	-.02228	.56342	.00110	-.00006	.00047	-.80354
7.320	-.084	-.05648	.08057	.08095	-.03649	-.01940	.48995	.00087	.00004	.00037	-.45249
7.320	1.880	-.00842	.07910	.07934	-.00583	-.01875	-.36783	.00034	-.00006	.00039	-.10651
7.320	4.848	.03791	.07899	.07511	.04441	-.01355	.76908	-.00009	-.00006	.00042	.48230
7.320	7.875	.08291	.08648	.07294	.10368	-.01138	.69916	.00026	.00001	.00047	1.07434
7.320	10.991	.15716	.10422	.07246	.17412	-.00904	.67855	-.00026	.00002	.00047	1.50817
7.320	13.888	.22624	.13095	.07291	.25103	-.00482	.66657	-.00031	.00002	.00065	1.72765
7.320	17.018	.30079	.16933	.07386	.33718	.00275	.63707	-.00030	.00003	.00065	1.72088
7.320	20.040	.37074	.21544	.07535	.42212	.01077	.63087	-.00024	-.00004	.00066	1.72088
7.320	GRADIENT	.01496	-.07224	-.00218	.01641	.00115	.00103	-.00015	-.00000	-.00000	.16756

(R8S053) (17 JUL 75)

AVES 3.5-157-0A11A 810C5 D7 F4 N8 M8 W8Y1E18 V8R5

REFERENCE DATA

SREF = 8880.0000 88.171. XREF = 1076.4800 IN.
LREF = 474.8000 IN. YREF = .0000 IN.
BREF = 936.8800 IN. ZREF = 400.0000 IN.
SCALE = .0150 SCALE

PARAMETRIC DATA

ELVN-L = 10.000 ELVN-R = 10.000
SPORR = 54.920 RUDDER = .000
AILRON = .000 ELEVON = 10.000
BOFLAP = -14.750 BETA = .000

RUN NO. 53/ 0 RV/L = 2.63 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	COL	L/D
5.272	27.029	.70723	.47912	.10540	.84772	-.08645	.69645	-.00306	.00079	-.00083	1.47610
5.272	29.869	.80397	.58565	.10711	.98888	-.09328	.69444	-.00846	.00044	-.00021	1.37279
5.272	32.807	.89226	.70669	.11052	1.13285	-.10355	.69330	-.00683	.00046	.00022	.8261
5.272	35.800	.96499	.82694	.11285	1.26581	-.11474	.69240	-.00699	.00047	.00023	1.16894
5.272	38.805	1.03958	.97648	.11444	1.42167	-.12727	.69200	-.00776	.00072	.00005	1.06461
5.272	41.997	1.09569	1.12639	.11493	1.56719	-.13824	.69153	-.00814	.00079	.00030	.97275
5.272	44.450	1.13401	1.27168	.11567	1.70507	-.15036	.69161	-.00758	.00056	.00060	.89174
5.272	46.233	1.15091	1.36509	.11629	1.78197	-.15775	.69164	-.00833	.00041	.00117	.84311
5.272	47.235	1.15522	1.41466	.11197	1.82299	-.16262	.69189	-.00843	.00040	.00130	.81661
5.272	GRADIENT	.02191	.04702	.00034	.04349	-.00379	-.00020	-.00014	-.00001	.00008	-.03252

DATE 20 SEP 77

TABULATED SOURCE DATA - ARC 3.5 157

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(RBS054) (17 JUL 78)

APES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5

REFERENCE DATA

SWEP = 2480.0000 58.47. XAPP = 1076.4800 IN.
 LREF = 474.8000 IN. YAPP = .0000 IN.
 SWEP = 936.8000 IN. ZAPP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 54/ 0 RV/L = 2.66 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.273	.60381	.40819	.06972	.72279	.00819	.65594	-.00548	-.00045	-.00057	1.47777
5.272	.67658	.48724	.06930	.82935	.01262	.54453	-.00552	-.00024	-.00061	1.38880
5.272	.75967	.59324	.03053	.95973	.01455	.55437	-.00526	-.00066	-.00017	1.28069
5.272	.82358	.69776	.09426	1.08024	.01603	.65468	-.00583	-.00060	-.00022	1.18892
5.273	.90189	.82736	.06812	1.22074	.01653	.65415	-.00620	-.00061	-.00008	1.09205
5.272	.95992	.96354	.06601	1.35737	.01640	.65567	-.00723	-.00047	-.00016	.99825
5.273	1.00226	1.09659	.08361	1.48326	.01495	.67639	-.00796	-.00022	-.00015	.91398
5.273	1.02148	1.18438	.08184	1.56189	.01370	.67935	-.00843	-.00005	-.00023	.86247
5.273	1.03048	1.22951	.08105	1.60219	.01313	.67706	-.00917	-.00002	-.00030	.83812
5.273	1.02117	.04141	-.00048	.04399	.00117	.00010	-.00018	.00002	.00002	-.03172

GRADIENT

(RBS055) (17 JUL 78)

APES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 V5R5

REFERENCE DATA

SWEP = 2480.0000 58.47. XAPP = 1076.4800 IN.
 LREF = 474.8000 IN. YAPP = .0000 IN.
 SWEP = 936.8000 IN. ZAPP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 55/ 0 RV/L = 2.65 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/R
5.271	.61823	.41236	.06577	.73901	.00038	.65981	-.00551	-.00031	-.00015	1.50166
5.273	.71453	.50705	.08520	.87201	-.00050	.66020	-.00683	-.00039	.00021	1.40919
5.273	.79705	.61362	.06803	1.00221	.00080	.65970	-.00761	-.00058	.00038	1.29893
5.273	.86569	.71775	.08905	1.12147	.00079	.65974	-.00780	-.00049	.00043	1.20640
5.273	.93770	.84911	.08227	1.26234	-.00007	.66001	-.00742	-.00041	.00056	1.10434
5.273	.99479	.98345	.07883	1.39663	-.00197	.66049	-.00712	-.00055	.00076	1.01153
5.273	1.03854	1.11621	.07530	1.52140	-.00456	.66106	-.00728	-.00018	.00103	.92863
5.272	1.05590	1.20443	.07356	1.60006	-.00637	.66141	-.00701	-.00014	.00116	.87668
5.273	1.06033	1.24575	.07237	1.63431	-.00637	.66138	-.00640	-.00012	.00123	.85116
5.272	1.02167	.04216	-.00072	.04473	-.00036	.00008	-.00002	.00001	.00006	-.03250

GRADIENT

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TACULATED SOURCE DATA - ARC 3.5 157

AMES 3.5-157-0A11A B1DC5 D7 F4 1B 1B 1B7E18 VSR5

(089056) (17 JUL 73)

PARAMETRIC DATA

REFERENCE DATA

8007 = 2000.0000 36. FT. XAPP = 1076.4800 IN.
 1007 = 474.8000 IN. YAPP = .0000 IN.
 2007 = 936.6600 IN. ZAPP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 56/ 0 RVL = 2.66 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.272	27.182	.67808	.44563	.08666	.80676	-.14246	.67881	-.00726	.00027	-.00066	1.52161
5.273	29.891	.76296	.53645	.08611	.97890	-.04690	.67805	-.00789	.00035	-.00092	1.42223
5.275	32.614	.85166	.65094	.08928	1.06821	-.03119	.67779	-.00781	.00049	-.00085	1.30836
5.275	35.311	.92802	.76540	.08934	1.19806	-.06001	.67790	-.00756	.00065	-.00060	1.20985
5.275	38.362	1.00134	.90597	.08345	1.34746	-.06853	.67817	-.00792	.00078	-.00097	1.10327
5.275	41.457	1.06216	1.05457	.08714	1.49423	-.07746	.67852	-.00798	.00106	-.00112	1.00720
5.275	44.291	1.10359	1.19515	.08465	1.62453	-.08706	.67915	-.00818	.00115	-.00091	.92339
5.272	46.219	1.11915	1.28760	.08287	1.70397	-.08975	.67862	-.00780	.00120	-.00098	.86918
5.275	47.100	1.12376	1.32953	.08161	1.73692	-.09012	.67832	-.00793	.00128	-.00086	.84325
5.275			.04507	-.00028	.04710	-.00256	.00003	-.00002	.00005	-.00001	-.03372

AMES 3.5-157-0A11A B1DC5 D7 F4 1B 1B 1B7E18 VSR5

(089057) (17 SEP 73)

PARAMETRIC DATA

REFERENCE DATA

8007 = 2000.0000 36. FT. XAPP = 1076.4800 IN.
 1007 = 474.8000 IN. YAPP = .0000 IN.
 2007 = 936.6600 IN. ZAPP = 400.0000 IN.
 SCALE = .0150 SCALE

RVL = 2.61 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
5.272	27.182	.61792	.41511	.08551	.73946	-.01302	.66629	-.00529	.00036	-.00062	1.48857
5.273	29.891	.69965	.50205	.08649	.85658	-.01409	.66567	-.00550	.00038	-.00066	1.39359
5.275	32.614	.78346	.60727	.09071	.98711	-.01721	.66822	-.00566	.00037	-.00070	1.29017
5.275	35.393	.86338	.72623	.09197	1.12446	-.02212	.66702	-.00568	.00038	-.00082	1.18682
5.275	38.276	.93441	.85405	.09163	1.26257	-.02968	.66839	-.00551	.00052	-.00023	1.09411
5.275	41.351	.99701	.99843	.09062	1.40806	-.03657	.66978	-.00539	.00076	-.00055	.99857
5.272	44.189	1.03769	1.13213	.08650	1.53319	-.04828	.67125	-.00656	.00103	-.00047	.91657
5.275	46.025	1.05339	1.21909	.08626	1.60940	-.05482	.67217	-.00666	.00112	-.00078	.86643
5.275			.04531	.00003	.04676	-.00230	.00003	-.00007	.00004	-.00000	-.03316

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TABULATED SOURCE DATA - ARC 3.5 157

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(RBSD59) (17 SEP 75)

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 VSR5

REFERENCE DATA

SHEP = 2690.0000 56.17. XMRP = 1076.4800 IN.
 LREF = 474.8000 IN. YMRP = .0000 IN.
 BREF = 936.6000 IN. ZMRP = 400.0000 IN.
 SCALE = .0150 SCALE

RNL = 2.67 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
7.320	27.263	.68375	.45792	.10300	.79978	-.05775	.68581	-.00474	.00099	-.00084	1.44848
7.320	29.782	.74340	.55060	.10781	.92053	-.06221	.68415	-.00497	.00098	-.00081	1.35330
7.320	32.432	.82793	.63924	.11239	1.05235	-.05829	.68319	-.00543	.00098	-.00080	1.25588
7.320	35.242	.90883	.78270	.11598	1.19227	-.07767	.68328	-.00589	.00100	-.00072	1.15859
7.320	38.087	.97357	.91324	.11824	1.32961	-.08710	.68341	-.00572	.00116	-.00039	1.06607
7.320	41.316	1.03618	1.06956	.11925	1.48441	-.09993	.68407	-.00599	.00125	-.00007	.96878
7.320	44.087	1.07169	1.20303	.11848	1.62679	-.11018	.68451	-.00643	.00144	-.00007	.89082
7.320	45.922	1.08739	1.29163	.11734	1.68435	-.12132	.68574	-.00713	.00149	-.00058	.84187
GRADIENT		.02286	.04516	.00076	.04775	-.00340	.00002	-.00011	.00003	.00003	-.03247

AMES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W87E18 VSR5

(RBSD59) (17 JUL 75)

REFERENCE DATA

SHEP = 2690.0000 56.17. XMRP = 1076.4800 IN.
 LREF = 474.8000 IN. YMRP = .0000 IN.
 BREF = 936.6000 IN. ZMRP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 59/ 0 RNL = 2.86 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
7.320	27.263	.68375	.45792	.10300	.79978	-.05775	.68581	-.00474	.00099	-.00084	1.44848
7.320	29.782	.74340	.55060	.10781	.92053	-.06221	.68415	-.00497	.00098	-.00081	1.35330
7.320	32.432	.82793	.63924	.11239	1.05235	-.05829	.68319	-.00543	.00098	-.00080	1.25588
7.320	35.242	.90883	.78270	.11598	1.19227	-.07767	.68328	-.00589	.00100	-.00072	1.15859
7.320	38.087	.97357	.91324	.11824	1.32961	-.08710	.68341	-.00572	.00116	-.00039	1.06607
7.320	41.316	1.03618	1.06956	.11925	1.48441	-.09993	.68407	-.00599	.00125	-.00007	.96878
7.320	44.087	1.07169	1.20303	.11848	1.62679	-.11018	.68451	-.00643	.00144	-.00007	.89082
7.320	45.922	1.08739	1.29163	.11734	1.68435	-.12132	.68574	-.00713	.00149	-.00058	.84187
GRADIENT		.02286	.04516	.00076	.04775	-.00340	.00002	-.00011	.00003	.00003	-.03247

PARAMETRIC DATA

ELVN-L = -40.000 ELVN-R = -40.000
 SPCBRK = 54.920 RUDDER = .000
 AIRLON = .000 ELEVON = -40.000
 BDFLAP = -14.750 BETA = .000

PARAMETRIC DATA

ELVN-L = 10.000 ELVN-R = 10.000
 SPCBRK = 54.920 RUDDER = .000
 AIRLON = .000 ELEVON = 10.000
 BDFLAP = -14.750 BETA = .000

DATE 20 SEP 73

TABULATED SOURCE DATA - ARC 3.5 157

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R085060) (17 SEP 73)

ANES 3.5-157-0A11A B10C5 D7 F4 N8 M3 W8TE16 V5R5

REFERENCE DATA

8007 = 2000.0000 88. FT. XAPP = 1076.4800 IN.
 1007 = 474.8000 IN. YAPP = .0000 IN.
 2007 = 936.8800 IN. ZAPP = 400.0000 IN.
 SCALE = .0130 SCALE

RVL = 2.02 GRADIENT INTERVAL = -5.00/ 5.00

MACH = 7.320

CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
ALPHA									
27.363	.58756	.08466	.70533	.02251	.64858	-.00135	.00097	.00049	1.46992
29.863	.48261	.08716	.81698	.02750	.64804	-.00075	.00048	.00077	1.37779
32.345	.74804	.08868	.93481	.03908	.64806	-.00074	.00032	.00086	1.29022
35.290	.61335	.08900	1.06680	.03249	.64910	-.00152	.00024	.00057	1.18927
36.336	.88719	.08680	1.19975	.03191	.65048	-.00156	.00026	.00055	1.09224
41.308	.94542	.08418	1.33258	.02877	.65227	-.00218	.00032	.00046	1.00269
44.130	.98622	.08029	1.45191	.02497	.65384	-.00269	.00053	.00071	.92292
45.488	.99493	.07825	1.49877	.02190	.65477	-.00293	.00091	.00046	.88547
GRADIENT	.02261	.04048	.04416	-.00007	.00037	-.00011	.00001	-.00001	-.03216

ANES 3.5-157-0A11A B10C5 D7 F4 1/2 M3 W8TE16 V5R5

R085061) (17 JUL 73)

REFERENCE DATA

8007 = 2000.0000 88. FT. XAPP = 1076.4800 IN.
 1007 = 474.8000 IN. YAPP = .0000 IN.
 2007 = 936.8800 IN. ZAPP = 400.0000 IN.
 SCALE = .0130 SCALE

RUN NO. 61/ 0 RVL = 2.81 GRADIENT INTERVAL = -5.00/ 5.00

PARAMETRIC DATA

ELVN-L = .000 ELVN-R = .000
 SPOBRK = 54.920 RUDDER = .000
 AIRCON = .000 ELEVON = .000
 BDFAP = -14.750 ALPHA = 49.000

MACH	BETA	CL	CD	CA	CN	CLM	XCP/L	CY	CYN	CBL	L/D
7.320	-10.227	1.01816	1.17185	.08923	1.55004	-.03677	.66847	.07727	.02498	.01896	.86885
7.320	-9.212	1.02274	1.17636	.08504	1.55647	-.03655	.66895	.06987	.02302	.01715	.86941
7.320	-7.051	1.03493	1.18814	.08436	1.57241	-.04398	.66998	.05371	.01884	.01322	.87105
7.320	-5.190	1.04319	1.19674	.08435	1.58534	-.04596	.67035	.03995	.01505	.00974	.87169
7.320	-3.100	1.04711	1.20126	.08464	1.59132	-.04930	.67107	.02533	.01056	.00638	.87166
7.320	-1.135	1.02810	1.17952	.08340	1.56247	-.05175	.67183	.00521	.00333	.00053	.87162
7.320	.746	1.04882	1.20439	.08558	1.59476	-.05014	.67123	-.00080	.00143	-.00074	.87093
7.320	2.619	1.04665	1.20177	.08532	1.59137	-.04961	.67114	-.00312	-.00312	-.00420	.87093
7.320	4.390	1.04238	1.19699	.08511	1.58496	-.04909	.67106	-.02632	-.00759	-.00769	.87083
7.320	9.240	1.02905	1.17779	.08439	1.55910	-.04563	.66999	-.06335	-.01843	-.01672	.87031
GRADIENT		.00007	.00025	.00012	.00023	.00009	-.00002	-.00241	-.00241	-.00186	-.00013

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TABULATED SOURCE DATA - ARC 3.5 157

AVES 3.5-157-0411A B10C5 D7 F4 N8 N3 W8E18 V5R5

(R03062) (17 JUL 73)

PARAMETRIC DATA

REFERENCE DATA

SREF = 2880.0000 50.FT. XARP = 1076.4800 IN.
 LREF = 474.8000 IN. YARP = .0000 IN.
 BREF = 936.8000 IN. ZARP = 400.0000 IN.
 SCALE = .0150 SCALE

RUN NO. 62/ 0 RV/L = 2.82 GRADIENT INTERVAL = -5.00/ 5.00

WACH	BETA	CL	CD	CA	CN	CLM	KCP/L	CY	CYN	CBL	L/D
7.320	-10.160	-.04613	.09428	.09427	-.04616	-.02574	.46057	.14975	.00004	.00464	-.48925
7.320	-9.219	-.04264	.09198	.09196	-.04266	-.02587	.44317	.13283	.00065	.00390	-.46355
7.320	-7.061	-.03784	.08807	.08806	-.03786	-.02676	.40732	.09937	.00145	.00246	-.42962
7.320	-5.164	-.03506	.08567	.08566	-.03508	-.02687	.38513	.07275	.00155	.00160	-.40930
7.320	-2.052	-.03355	.08415	.08414	-.03357	-.02689	.37358	.04675	.00131	.00093	-.39868
7.320	-.156	-.02960	.07973	.07972	-.02961	-.02714	.33228	.01264	.00034	.00019	-.37121
7.320	.750	-.03123	.08175	.08174	-.03125	-.02850	.33383	.00332	.00023	-.00001	-.36200
7.320	2.617	-.03214	.08240	.08240	-.03216	-.02840	.34431	-.01784	-.00065	-.00042	-.39008
7.320	4.481	-.03340	.08360	.08359	-.03342	-.02819	.35838	-.03922	-.00140	-.00085	-.39953
7.320	9.435	-.03955	.08746	.08745	-.03957	-.02817	.40543	-.10822	-.00182	-.00271	-.45219
7.320	GRADIENT	-.00005	.00001	.00001	-.00006	-.00020	-.00159	-.01137	-.00036	-.00024	-.00065